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# GAS JOURNAL

LIGHT • HEAT • POWER • BYE-PRODUCTS

[Founded in 1849 as the "Journal of Gas Lighting."]

VOL. CLXX. No. 3236.] LONDON, MAY 20, 1925. [77TH YEAR. PRICE 1s.



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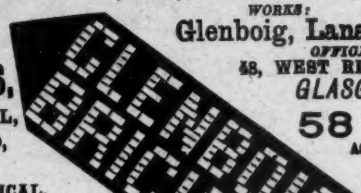


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VOL. CLXX., No. 3236.] WEDNESDAY, MAY 20, 1925. [77TH YEAR.


## EDITORIAL NOTES.

### The Gas Exhibit.

EMPHASIS may be placed on "The" in the above title, because the Exhibit is—good as was that of last year—the best thing of the kind that has been done. A visit to Wembley at the end of last week satisfied us on that score. And we came away strongly impressed with the fact that it is the most imposing feature in the Palace of Industry, because of the attractiveness, from the popular point of view, that met our gaze and scrutiny at every turn. It was one of the glorious sunlit days that were experienced last week, when the world was full of life, and people were taking a keen interest in what was going on about them—interest quickened by light and brightness. Sunshine adds greatly to the glories of Wembley, and is a potent excitant to the desire to share fully in the interest and pleasure offered there with such lavish hand. And day by day last week more people journeyed to Wembley than on the corresponding days of last year immediately succeeding the opening. All concerned in obtaining, and longing for, a full measure of success in its mission to the British Empire Exhibition are devoutly trusting that Old Sol will comply with the wishes of the people, and not be so niggardly as he was last year in ministering to their happiness.

Those who have devised and brought to the point of completion the Gas Exhibit know well how much brightness and life contribute to the attraction of the public. And brightness and life are there in just those proportions which bring into relief the vast extent of utility which the industry offers to the world and his wife. The General and Executive Committees are mightily pleased with the encouraging reception the results of their efforts have brought to them during these early days. But that, we hope, is only the beginning of a veritable wave. The Committee were well advised to annex the extra space which was available this year adjoining last year's habitation. We see several advantages in this, especially on the days when the crowd is largest. The additional space gives more circulating room, and so better opportunities for inspection. It has enabled the Committee to breathe more freely, to take a larger view of things, and to make the Exhibit more comprehensive than last year. Its features were described in our special Wembley number, and the various articles showed the breadth of the demonstrated interest —interest which embraces our most important Dominions, and our domestic and industrial life at home.

The object of the Exhibit is to serve the interests of the gas industry, irrespective of supply undertaking or manufacturing concern. The modern way of doing these things is by following the "all-in" policy—that is to say, present our capabilities to the largest possible extent in a manner which will be of benefit to the whole gas industry, and that way is the right one. In propaganda work of this kind the first thing to be done is to impress upon the public the facts as to what gas can do; and this is not to be accomplished by a mass collection of different makers' appliances. The respective advantages of different types can best be told, illustrated, or proved through other channels. The conversion of the public is the first matter to be taken in hand. It is fundamental to all else; and as that conversion proceeds, we can go ahead. That aspect is again exemplified in the Exhibit this year. So is another. In respect of domestic applications, our womenfolk, who dominate the arrangements in our homes, regard our offers and demonstrations from two aspects—the artistic and the utilitarian. Only last Friday at Wembley we heard one lady say that the exhibit must, and does, dispel all doubts which exist in the minds of some ladies that gas applications cannot be clothed in the artistic merit which will conform with the requirements of the modern home. Those gas engineers and managers whose minds have not developed beyond the "C" incandescent burner of the 'eighties, and the large ugly "Universal" inverted burner of the early part of this century, had better note that the modern home requires gas fittings and heating and cooking appliances of compatible design—design divested of the repulsive ugliness of past times. What is available in this respect should be patronized by all gas men, who should be the first to use every effort and every opportunity to blot out the past, and to secure greater stability by being very much up-to-date. Picturesqueness is a feature of the Gas Exhibit—refinement and beauty on lines which comply with modern taste and requirement, and arrest the attention; and they serve to bring out the vast range of utility which gas applications offer in the home—not only in this country, but in the Dominions. In the demonstration at the Exhibit, one is also struck by the considerable influence which British practice in gas application has had upon the better-class homes in the Dominions. From it all projects the vast range of utility in gas application, in both the domestic and industrial regions.

It is indeed a fine display, and much more spacious in every respect than last year. We talk, for example, in general terms of smoke abatement, of the health-giving power of the sun's rays, and of the beneficial effects of the latter being so largely diminished by the smoke-screen provided by domestic hearth and industrial chimney. The Exhibit shows how the gifts of science and increased knowledge can be utilized for the preservation of the gifts of Nature. The utilization is a responsibility, with profit attached. That has to be impressed on the communities served by the gas undertakings of the country, as well as the fact that, by utilizing fuel in a scientific manner, those who do so are serving themselves by reducing the use of those things that create labour and so deprive them of leisure, which it is easy enough to secure when unnecessary work is the cause of its attenuation or absence. Gas engineers and gas salesmen will be personally inspecting the Exhibit, and learning of the work that is going on in the demonstration and cooking hall. There are for them object-lessons in the art of propaganda. But it is the public whose attendance is desired in constant stream. The provision is there for their education; their attendance alone will make for ultimate success. Because of this, every gas undertaking should supplement the general advertising, and make known throughout their supply areas that the Exhibit is a feature of Wembley that should not be missed. Co-operative effort in securing visitors is the way to maximum success.

While writing on the Exhibit, may we particularly invite the attention of kindly disposed readers who visit the Ex-

hibit to the display of the beautiful pottery made by disabled soldiers at the Ashtead Pottery? The work is illustrated by a gas-fired oven. Sir Lawrence Weaver, who is interested in this effort to enable these men to earn their own livelihood, asks for inspection and patronage. It is a good cause, which all may confidently support and commend.

## The Coke Competition.

We wish strongly to impress upon those who are working at papers for one or more of the three sections in the Coke Competition that delivery must be made, by post, to the Editor of the "Journal" not later than the 30th of June. But in order to assist those to whom the task of adjudication has been confided, it would be a convenience, and contribute to an early decision, if papers to which the finishing touches have been given are sent in before that date. We would reiterate the point that, while prizes to the amount of £1000 are offered (through the generosity of the Woodall-Duckham Companies, though they are taking no part whatever in the examination of the papers or in making the awards), the honour of being among the winners will in itself be a prize of no mean value.

Never was there a time when a competition of the kind—a pooling of information, results of experimental work or practical experience, and suggestion—was more necessary in the interests of the first and the largest revenue-producing secondary product of the industry. The condition of the coke market to-day is sufficient evidence as to the truth of this. We have to ascertain what is best to be done to improve demand, so as to restore, maintain, and even enhance the position that coke has occupied in respect of the contribution it makes to the reduction of the net cost of our primary commodity. Many minds have been occupied as to the best methods for selling coke. The question is one of larger dimensions than that. We have to get back to the very genesis of the coke, and to a proper understanding of the requirements of users, or would-be users if convinced on the point of utility and satisfied that they could constantly get what they want. The deeper we go into the matter, the more we learn of the widely diverse characteristics of coke in different places—the divergencies being such that the poor qualities in some districts do infinite harm by creating a false reputation for coke generally—the contradictory experience creating the view of unreliability. That is a pity; and the view can only be corrected of it by those whose coke cannot boast of good properties ascertaining whether, on balance, it would not pay them better to investigate the means of improving the quality. There are large fields for coke for steam-raising and other industrial use, and for domestic purposes; but the fields have to be cultivated. The demonstration of good results will alone accomplish this; and the most efficient results are only achievable by the quality of the coke being right and the conditions of its use correct. Quality of coke is a matter in which a good many well-known factors participate; and one has to consider how far those factors can be economically applied in practice. The handling of coke and its grading according to purpose are also important, and should be stressed here (though in a separate section in the competition) in company with the qualitative aspect. There are many gas-works producing and preparing coke for the market which give excellent results; and there are works which go on week after week and year after year turning-out inferior material, and attempting to dispose of it without any effort at preparing it to suitable size for the purposes to which it has to be applied. We should not in these various connections overlook the fact that the gas industry is in a position to take a large part in the solution of the problem of coal conservation through putting it (as it does) to the most profitable use from the national point of view, and by assisting in bringing about a better co-ordination of the utilization of fuel. But our credentials in respect of quality, suitability, and dependability of coke must be right if we are to realize and maintain our proper status in this matter of great national moment.

Deliberately, and from long observation, we say that this question of coke as a commodity and a contributor of no mean importance to the revenue of our industry has been permitted to drift all too long. It must not be allowed to become (perhaps to-day we ought to say continue to be) a drug in the markets. We should, if wisdom prevails, seriously concentrate on what is best to be done to make it more popular, and not sit still simply waiting for something to turn up. We know of the active influences that are at work in opposition to the utilization of tar for road purposes, and of the influential competition that there is in this respect. We know, too, that sulphate of ammonia is exposed to severe competition from increasingly powerful new sources. Thus there are many reasons why no effort should be spared to produce (within economic limits) coke which shall become so popular that the normal condition will be clear coke yards, despite greater quantities of coal being carbonized to meet the expanding utilization of gas. To this end, we sincerely hope the Coke Competition will contribute. As particulars of this are still being sought, it may be again mentioned that full information as to the sections, conditions to be observed, and the prizes to be won was given in the "Journal" for Feb. 18.

## Municipal Authorities and Section 1.

The annual report of the Scottish District of the National Gas Council, which was published in the "Journal" last week (pp. 464-5), contained a reference to the position of the municipal authorities of Scotland in relation to section 1 of the Gas Regulation Act. It is a subject which has been made interesting owing to the idea which some administrators of municipal gas undertakings entertain that the therm basis would have effects of a somewhat different order (though gas consumers in one place are much the same in type and habits, and in their gas applications, as those in another place) in municipal areas than in company areas. They do not appear to have heard that, in municipal gas supply areas where the system has been applied, the troubles which they apprehend have failed to materialize. A good proportion of the municipal authorities owning gas-works in Scotland—including Edinburgh and Glasgow—do not agree with their doubting English compeers; and we know that the municipal administrators of Scotland, with their native caution, do not accept innovation until they have examined it all round, and have turned it inside out. The Scottish District of the National Gas Council two years ago strongly advised municipal authorities to take early steps to apply the Gas Regulation Act. One result is that to-day 33 of the gas-possessing municipalities in Scotland are satisfactorily working on the therm system—the public have favourably received it; and there is not the slightest desire to revert to the old order of things. If Scotland, why not England? If some English municipalities, why not the remainder? We see nothing to differentiate between them; neither do the Board of Trade, as was plainly revealed when the deputation from English municipalities had, early in the year, their interview on the subject with Mr. P. W. L. Ashley, C.B., the Principal Assistant Secretary of the Industries and Manufactures Department, and Mr. H. C. Honey, the Director of Gas Administration. It was perfectly obvious to the deputation that the Board have resolved to carry out the intentions of the Legislature in passing the Gas Regulation Act, though they would rather voluntary application be made than have to use the compulsory power conferred upon them by the Act.

In Scotland, however, there are some extremely small gas undertakings carried on by local authorities; and those who are prominent in the affairs of the Scottish District of the National Gas Council, and who have themselves voluntarily come under the Act, see good reason why such concerns without any real staff, carbonizing a small tonnage of coal a year, with few customers and low total consumptions, should be exempt from change. Some of them are not in a position to carry out tests of any description; and to leave them as they are (unless their supplies could with economy, and therefore public advantage, be taken over by a larger neighbouring concern) would not make the slightest difference to what might be regarded as the universal application of the therm system to statutory undertakings—when that desirable condition is consummated. A small deputation from Scotland—Mr. James Campbell, of Dunfermline, the President of the

North British Association of Gas Managers, and Mr. J. W. Napier, of Alloa, accompanied by Mr. E. J. Fottrell, of the National Gas Council—have interviewed Mr. Ashley and Mr. Honey on the subject; and these gentlemen appear to have been impressed by the evidence laid before them by these advocates for the exemption of the small concerns. Neither Mr. Campbell nor Mr. Napier can be accused of desiring personal relief, for they are both working on the therm system (respectively with declared values of 430 and 440 B.Th.U.), and are strong believers in its being applied wherever practicable. No definite promise was made as to the exemption of small undertakings; but the matter is to receive consideration. From what is said in the report, it may be that Mr. Ashley and Mr. Honey may determine to recommend that works with an output of 25 million cubic feet and below should not be compelled to come under the Act. In other words, that it should be within the discretion of those responsible for such works whether or not they do so. No possible harm would be done by that. But the final decision of the Board has to be announced.

## Miners Show the Way.

THE labour world appears to be in topsy-turvy state just now; and it is difficult to presage what will happen. But from the jumble of current conditions, it is possible for the searcher after light on the position to find indications which show a satisfactory movement. It is found that those labour leaders possessing magnitude of mind realize that the depression in our industries is largely due to economic conditions being against them, compared with other countries, and that the latter are getting work which we want, but which we are unsuccessful in obtaining owing to our circumstances, which include the consequent burden of a mass of unemployment. A few months ago there were many imposing claims made for higher wages by important trade unions in the country; and men, intemperate in language and prognostication, menaced the country with a year of unprecedented labour upheaval and trouble in the attempt to extract extra gold from places where it does not exist, and where it is impossible to make more while an economic return in work is not given for the money expended in wages. Unemployment on the grand scale continues; and these men do not show, or care, how there can be any permanent remedy of the condition. The only way to remedy it is, of course, to create work—not artificially, or for temporary purpose, for that would only mean, without other radical alterations, a return, when that work ended, to the *status quo ante*. The creation of work must be by bringing ourselves into a position competitive with other countries, and that can only be done by the co-operation of all concerned.

As we have said, the gravity of the position is being realized by the more thoughtful and balanced minds in the labour world; and one result of this is that there have been joint conferences in different industries on the situation, and investigation of conditions. Probably owing to this, less is heard to-day of upheavals and doing those things which would only bring about a more gloomy world for British labour. It is no use fighting for anything when the issue will be to worsen the pre-existing state; and that is what is being recognized by intellects that have not taken flight beyond the bounds of sanity. The lessened trade that is being done, and the reduction of the activities of our ordinary manufacturing industries, have made three points clear—that the amount of employment must be consonant with requirement; that in order to restore employment, in the affected industries, output must cost less; and that if wages are not to be lowered, then there must be more output for the money paid. That way, and that alone, is the route to increasing the capacity of industry to pay more money, consistent with a balance between work and pay being maintained which will enable industry to meet competition.

The miners, engineering trades, the railwaymen, gas workers, and others have been seeking higher pay. So far as the gas workers are concerned, the conditions of the industry in respect of revenue from secondary products have seriously altered; and so they have in the railway world in respect of reduced traffic, owing to the state of the coal and manufacturing industries. The engineering trades are in a sad plight due to the inability to retain and obtain work in this country through the much cheaper rate at which it can be done abroad. It is a singular thing that the mining industry, poor in its circumstances to-day in consequence of the trend of adverse events (to which there has been material contribution through the autocratic and disastrous policy of the Miners' Federation), is the one which to-day is giving evidence of the effect which good work for fair pay can have upon the fortunes of previously non-paying pits. The evidence is not to the liking of the Miners' Federation and of the constituent unions; and it shows that among the rank-and-file there are intelligences at work which are leading the men to exercise their own will rather than be under the bondage of union rule, and sacrifice themselves, their dependents, and their homes. We hope this sort of thing will grow, and ultimately result in the unions conforming their policy to the conditions of the times, instead of pursuing a course which is detrimental to the interests of the members of their organizations. There has been reference in our columns on former occasions to what is being done at the Vauxhall Colliery, near Wrexham. The pit was losing money week by week, and the owners had determined to close down (as several other collieries have had to do) owing to reduced trade and inability to compete at profitable prices. Someone wisely suggested an experiment in co-operation. The threatened closing-down of the colliery had cast gloom over the neighbouring village. The men determined to give co-operation a trial, despite the appeals of an alarmed Union to have nothing to do with such an obviously prudent course; and then came the menace of suspension from the Union, upon which, however, there has not been action. A guarantee fund was started to protect the men from loss; and the whole village is happy to-day. The experiment has been going on for some weeks. About 75 p.ct. of the men are, by their own efforts, earning more than the minimum wage laid down by the national agreement; and this is solely due to a decision to give a new interpretation to the seven-hour enactment. Hitherto the accepted interpretation has been seven hours from bank to bank; but this was modified in the Vauxhall Colliery so as to substitute for the bottom of the shaft district timing stations situated about 300 yards from the seams—thus the wages paid for unproductive walking time has been transferred to the account of productive labour. The result of the longer time at the face is an increase of output from 16 to 20 p.ct.; and the hewers are earning about 10s. per ton of extra coal won. The other costs are unaltered; and the difference in the cost of production is such that the sale of the coal shows a margin of profit, instead of a loss. While this continues, there will be no fear of the men being thrown out of employment. So long as there was no chance of the colliery being run without loss, their outlook gave no hope of employment, with so many unemployed in the industry.

Those miners are pioneers in proving that past policy has been wrong—that miners have it within their power to improve the economic conditions within the industry which gives them employment, just as they have it within their power to do those things which make it impossible for large parts of the industry to be carried on. The old policy has promoted insecurity; the Vauxhall policy security and happiness. The example is having good effect. The Bedwas Collieries were about to close down; and the 2500 men affected made the proposal that they should retain their employment by increasing the output! The miners at the Houghton Colliery (Durham) have made it possible to keep it open by agreeing to work an hour longer each day. At the Birchenwood Colliery, North Staffordshire, the firemen accepted the owners' proposal that there should be co-operative working; but at a mass meeting, the miners, ill-advised by their leaders, rejected the proposal. The incident shows that co-operation is the last thing desired by the men's leaders. The Newbiggin Colliery in Northumberland had reached a stage at which the owners could not continue its operation, but the miners, rather than lose their work, have accepted a reduction in pay of 3d. per ton. The Unions do not like the accruing testimony to the pernicious effects of their unsound policy. Union leaders who adhere to and defend a policy which

inflicts injury upon an industry, and converts profitable into unprofitable production, are traitors to the interests of the members they are elected to serve. The present conditions show there are other ways than increasing wages and shortening hours by which the interests of members can be protected. The Vauxhall men have shown one way—through the simple expedient of putting in approximately seven hours at the face, and so enlarging the production per shift—and it has automatically brought them additional pay. These events are the handwriting on the wall; in them there is warning for all trade union leaders. They would do well to give heed to them, before the rank-and-file take matters into their own hands, and pursue the course which their own intelligence and conscience assure them is the right one. Greater sense has been shown at the Vauxhall and other collieries than has emanated for a long time past from the Miners' Federation. Compare it with the silly ravings and threats of Mr. Cook! The Vauxhall men have retained their employment and increased their income by rational and peaceful methods; Mr. Cook would ruin employment and pay in the industry by militant tactics.

## The Government and Electricity Development.

It seems that we are getting close now to the revelation of the contents of the report of Lord Weir's Committee, who have been considering the question of electrical development on the national scale. The Prime Minister, speaking last Friday at the Oxford University Conservative Association, stated that the report has been completed; its recommendations are being most carefully examined by the Cabinet; and if, in the result, they endorse the Committee's policy, its carrying out will be the first important task the House of Commons will have to face on reassembling in the autumn. From another source, it is learned that the recommendations have already been under the consideration of the Minister of Transport (Lieut.-Col. Wilfrid Ashley); and a Memorandum has been circulated among the members of the Cabinet. With what degree of actual knowledge the same Parliamentary authority gives the information, we do not know, but he asserts that Ministers regard the proposals which have emanated from the Committee as providing the basis for an excellent scheme, and that the main object of the Bill which is being framed is to make provision for linking-up generating stations, and co-ordinating and standardizing their power service.

Reverting to the speech of the Prime Minister. He appears to be obsessed by the idea of "cheap power." There are other things which are more important to industry, and which would help it far more if they were "cheapened," or lowered in their pecuniary weight. It is quite true that we consume less units of electrical energy than other countries, which, the Prime Minister asserts, are inferior to our own in industrial production. The latter is not a recommendation to an acceptance of their example in the consumption of more units of electrical power. Notwithstanding, the Prime Minister considers that, unless something is done, and done quickly, the discrepancy between this country and others in respect of electrical power consumption will increase by leaps and bounds, year by year, until we are unable to compete. The Prime Minister should come down to earth from the heights to which he is soaring in this matter, and inquire what are the actual power costs per unit of production in this country compared with others dependent (as we are) upon solid fuel for the generation of electricity. He should also make research into the question of the proportion that power costs have in the total costs of manufacture per unit of output. We think he would be astonished at the smallness. The exercise might cause him to conclude that it is not the expense of power but other items in the total costs of production which really matter, and which are the brakes upon the industrial progress of this country. Incidentally, he might further find that heat is no less important to industry than power. We shall be interested in learning precisely the lines of the report and recommendations of Lord Weir's Committee. Some indication may be given tomorrow, as, on the estimates of the Ministry of Transport being introduced for discussion, the Liberal Party are proposing to raise the question of the development of electricity supply; and the Government may use the opportunity for an announcement as to their proposals.

### The King and Queen.

The King and Queen were highly interested during their tour of the Gas Exhibit last week. His Majesty recalled the fact that last year one of the attractions was the "Seven Ages of Woman," and that there were children in the nursery scene. Their Majesties were also interested in the tar exhibit (not far away) of the National Gas Council. No one should miss this. People are talking of the delightful conception of the scene at the sign of "The Jolly Jack Tar." Members of highway authorities and road surveyors are being invited to visit the exhibit, and to obtain information from the expert in charge. A little local influence might be added to the official invitation.

### Good Attendance Record.

The total number of visitors to the British Empire Exhibition this year up to, and including, last Saturday was 348,192. The total number of visitors in the week, excluding the opening day, was 227,475. Last year's figures for the first six days, which included the Cup Final day, totalled only 301,555. It is therefore evident that the attendance this year has, so far, greatly increased over last year, during the similar period. The total number of visitors on Saturday was 99,252.

### A Colliery for Sale.

It is not often that in our editorial columns we specially draw attention to advertisements. The idea of gas undertakings becoming colliery owners is not a new one. It has frequently been discussed by municipal authorities owning gas-works; but the suggestion has never matured. Among our "For Sale" advertisements to-day is one offering the Redheugh Colliery for sale. This is situated at Gateshead-on-Tyne. It is estimated that unworked coal is available there for fifty to sixty years; and the present owners consider that it would be a paying proposition for acquisition by gas-works, coke and bye-product manufacturers, engineers, &c. Those who have thought it would be a good thing for their gas-works to own a colliery will perhaps be inclined to probe further this definite suggestion, and ascertain whether there is real economy in it for gas-making purposes. There has been no time within the past decade when, we imagine, collieries could be purchased at a lower figure than to-day.

### Coal Industry Inquiry.

If no definite result issues from the joint inquiry into the economic position of the coal industry by the Mining Association and the Miners' Federation, the facts revealed by the investigation must have some good influence in reducing the chasm between the owners and the miners. A statement which has been issued as to the proceedings shows that the course of procedure resolved upon was that the facts relating to the present position of the industry should first be examined, that the question of causes should next be considered, and that remedies should then be discussed. Among the first facts discussed was the reduction of the export trade—from 74 million tons in 1913 to 62 millions in 1924, and at the rate of 52 millions per annum in the first three months of this year. The average f.o.b. price at the port of shipment was 23s. 4d.; and this has been reduced to 20s. 9d., which figure in present circumstances means a loss of about 1s. 6d. on every ton exported. The wages cost in Germany is about 50 p.ct. of the total costs, as against 70 p.ct. in this country. While earnings and labour costs are less in Germany than here, the other items of expenditure are higher. The miners' representatives point out that the cost of living in Germany is not so great as in this country. Reference is also made to the great increase in the production of brown coal in Germany—124 million tons in 1924, compared with 87 million tons in 1913—which enters into competition with German black coal, and thus intensifies the competition with British coal. Bearing also upon competition is the fact of the increased output capacity. For instance, the sales policy of the Westphalian Syndicate is now based on an output capacity nearly 70 p.ct. in excess of that of 1913.

### British Costs and Effects.

A comparison is given of working costs in 1913-14 compared with May to December, 1924. In the former period, the total costs per ton of commercially disposable coal were 9s. 5½d., of which wages accounted for 6s. 10½d. In the latter period the costs were 18s. 11·74d., of which wages accounted

for 13s. 6·7d. The earnings per shift were 6s. 5·64d. in 1913-14, as compared with 10s. 10·32d. in May-December, 1924. The output of coal per shift in the respective periods was 20·23 cwt. and 17·8 cwt. Thus while the earnings have gone up 67·9 p.c.t., the output has been reduced by 12·1 p.ct. Figures were presented which show that in the period from May to December last year, 111 pits were closed, involving 59,000 men. On May 7, the Secretary of Mines stated that 256 coal mines, normally employing 55,300 wage earners, have been closed since Nov. 1, 1924, and have not been re-opened. During the same period, 90 mines, employing 10,000 wage earners, have been opened or re-opened. The total number of persons unemployed in the industry in March was 148,358, or 11·8 p.ct. of the total employed. Transport and freight charges have also been considered. Other points have yet to be cleared up, and then the question of causes and possible remedies will be attacked. Meantime, an illustration of one good remedy (referred to in an editorial article in this issue) is being supplied by co-operative working, in which the men are doing a better part. The average increase in earnings and the reduced output per shift mentioned above, which combine adversely to affect the costs per ton, are highly important factors.

### Trade Facilities Act.

Further guarantees under the Trade Facilities Act have been given by the Treasury, bringing the aggregate at March 31 to £55,577,811. Among the new items is £26,000 to the Ascot District Gas and Electricity Company, Ltd., and £2,000,000 to Synthetic Ammonia and Nitrates, Ltd. The guarantee to the latter is to cover the extension of the plant.

### Rating of Machinery.

The Central Executive Board of the National Gas Council have had under consideration the Rating and Valuation Bill; and a Special Rating Committee of the Council are closely watching it. The fact that the rating of machinery has been a grievance among manufacturers for a long period was alluded to in a speech by Mr. Neville Chamberlain in the House of Commons last Wednesday. He reminded members that a Departmental Committee, which studied the question in 1923, found that in the application of the law there was a serious lack of uniformity between unions, which ought, if possible, to be remedied. Concluding that manufacturers were entitled to some relief, they recommended that loose tools and plant and machines operated by hand or foot should be excluded from rating, and that the rest of the machinery should be divided into two classes. One class was to be considered as part of the hereditament and be fully rated. This was to include motive power, lighting, heating, and ventilating apparatus, lifts, elevators, rails, and tramway tracks and plant or combinations of plant and machinery of the nature of the structure. The second class was process machinery, which was also to be rated, but was to receive a rebate of 25 p.ct. of the amount of the rate. The Committee also made proposals as to the setting up of a panel of referees who might decide whether any particular piece of machinery fell into one or other of the two classes. The Bill follows the recommendations of the Committee. Mr. Chamberlain does not think it possible, however, to put into the Bill a complete schedule of machinery to be fully rated; and he has adopted the expedient of setting up a Committee whose duty will be to compile a list. This will be revised at intervals; and there is provision in the Bill for objections to be made and heard. The Committee rejected proposals of this kind on the ground that they were impracticable; but Mr. Chamberlain does not see why this should be so. He is also unable to accept the Committee's suggestion that certain machinery should be subject to 25 p.ct. rebate. The expense and protracted delay that would be involved in valuing all this machinery, from which only 75 p.ct. would be obtained for the rates, does not seem to him to be a business proposition. He feels that putting a charge upon a manufacturer because he is bringing his machinery up to date and putting himself in a position to compete more effectively with his foreign competitors, is a thing which ought not to be encouraged. The relief which the exemption of machinery will bring to the manufacturers will help them to increase their output, and to employ more men; and therefore it will decrease the general charge upon the ratepayers.

## PERSONAL.

The Stockton Corporation have congratulated their Gas Engineer, Mr. W. W. ATLEY, on his appointment as President of the North of England Gas Managers' Association, and have given permission for the Association to be invited to hold their October meeting in Stockton.

Mr. T. J. ASHLEY, who for about twenty years has occupied the position of Chief Engineer to Messrs. Aldridge & Ranken, and as such has been known to a large number of gas engineers both in this country and abroad, has retired owing to ill-health, and will reside at Broadstairs. Mr. R. W. Green, on behalf of the Directors and staff, presented Mr. Ashley with a club armchair, in recognition of his unvarying kindness to the staff. Mr. Ashley, who has been a Director of the Company since its formation, will retain his seat on the Board; and Mr. GREEN, who has been with the Company for over seventeen years, has been appointed Chief Engineer.

Mr. J. W. WALKER has been appointed Chief Salesman to Messrs. J. & G. Wells, Ltd., and his address is now Eckington Collieries, near Sheffield. His son, Mr. J. W. WALKER, Jun., will succeed him as the Company's Agent for London, the Southern and Eastern Counties, Birmingham, and Midland Districts; and his address is "Ashleigh," No. 255, Grove Lane, Handsworth, Birmingham.

## OBITUARY.

### E. J. BROCKWAY.

We regret to announce the death of Mr. E. J. Brockway, J.P., Engineer, Manager, and Secretary of the Cleethorpes Gas Company, who, on May 11, passed away at his residence, Sussex House, Cleethorpes, in his 65th year.

Mr. Brockway, who was a native of Salisbury, began his connection with the gas industry at the works of Messrs. Willey & Co., Exeter. After completing his apprenticeship, he became an assistant to a gas engineer who owned or leased several gas-works. Here Mr. Brockway gained a good deal of experience in management and constructional work on a small scale. After four years as Assistant Engineer at Malton, he went to the Oakham Gas-Works as Engineer and Manager, and in 1890 left Oakham to go to Cleethorpes.

Some idea of the outstanding progress of the town and district of Cleethorpes, and incidentally of the Company who have served it so well in the matter of gas supply, is furnished by the fact that when Mr. Brockway first took up his duties in 1890 at Cleethorpes, the annual output of gas was about 20 million c.ft., while to-day it is just over 300 million c.ft. This has necessitated the laying of a considerable mileage of mains and services per annum, as well as rapid and extensive works reconstructions and additions. With increases over the previous year's output amounting at times to as much as 50 p.ct., it required considerable skill and foresight, not to mention courage, in order to avoid committing the Company to expedients which in the long run often prove disproportionately costly. That the late Manager achieved remarkable and lasting success in meeting these extraordinary conditions is evidenced by the present exceedingly prosperous state of the Company, and by the fact that they have consistently paid maximum dividends for the past 27 years.

In 1896 Mr. Brockway was elected President of the Eastern Counties Gas Managers' Association, and later served as District Member of Council of the Institution of Gas Engineers. As is well known, he was one of the pioneers in carbonization by means of vertical retorts. His experiments on a practical scale began with the Settle-Padfield process, from which he, in conjunction with Messrs. Robert Dempster & Sons, Ltd., of Elland, evolved a very successful form of intermittent retort which is still in operation at the Cleethorpes Works. Later he adopted the Dempster-Toogood continuous system, which is now working in conjunction with the intermittents—the combination making a very flexible and efficient production unit. Various other interesting experiments in plant and methods which have been initiated by Mr. Brockway and tried at Cleethorpes have been recorded from time to time in these columns, and the industry is the loser by the passing of such a devoted servant and able propagandist.

Mr. Brockway was, at the time of his death, a Director of the Woodhall Spa Gas and Water Company, which is also a very flourishing concern. He was formerly the sole proprietor of the Kirton Gas-Works, near Boston, Lincs., and Consulting Engineer to the Skegness Gas Company and the Bolsover Gas Company. As a County Magistrate and former Chairman of the Cleethorpes Urban District Council, he was highly regarded for the worth of his public services. Up to the time of his death he was Chairman of the Official Advertising Committee of the town, and did much to enhance the reputation of Cleethorpes as a health and pleasure resort. In the masonic world he secured high honours, and was one of the founders and past masters of the Lord Worsley Lodge, Cleethorpes. He was also a keen motorist and a founder of the Lincolnshire Automobile Club.

# ELECTRICITY SUPPLY MEMORANDA

A correspondent in the provinces calls attention to some comments by "Meteor" in the "Electrical Times" for May 7, under the heading of "Burn More Gas and Coke;" and, in his letter, referring to the nature and form of those comments, he makes a remark which we will not repeat lest it hurts the feelings of our contemporary. Perhaps our correspondent does not know of the capacity of "Meteor" for utilizing in his writings the foam of sarcasm and generalities, instead of dealing with solid and material facts. The subjects of his sarcasm and platitudes on this occasion are statements made at the Chester District Conference of the British Commercial Gas Association regarding the relative economic merits of gas and electricity for various domestic and industrial purposes. Not in any part of his thin criticism does he advance a single point which negatives, by definite data, the statements made at that conference. If he will put forward such data, there will be both pleasure and profit in dealing with them. We will only touch on one point. He remarks: "Where gas meets electricity in a fair field, on anything like equal terms, electricity wins every time, and these frantic gas advocates know it." Does he mean "for heating, cooking, lighting, power, and every other conceivable purpose"? If so, then let us have, instead of the nonsense in the paragraphs before us, the evidence based on the "equal terms" for each of those purposes. Meantime, in his spare moments, "Meteor" might consider why it is that there are millions of gas cookers and gas fires in use in this country. Why is it that they have been increasing during immediate past years at a rate per annum without precedent? Why is it that, if electricity wins every time, the new heating connections made by gas in any locality far exceed those made by electricity? Why is it that one London Gas Company alone supplies more heat energy than the whole of the electricity supply undertakings in the country? "Meteor" should endeavour not to expose himself to ridicule when he opens the floodgates of his exiguous satire.

**Sarcasm to Avoid Facts.**

The electrical people are not a little perturbed regarding the fact that experience by consumers with electric cookers is not aiding them in increasing the rate of output. After the first splash, demand declines; and the gas industry involuntarily increases its store of knowledge as to the dissatisfaction of users over their experiences, particularly in the matter of costs. To complaints of exorbitant expense for service rendered, the electrical people reply that it is all nonsense, and consumers are making a great mistake. But all the finesse they can bring to bear will not convince the users of the cookers that they must not trust the evidence of their own senses and payments. It is a considerable drawback to the electric cooker, apart from the expensiveness of electrical B.Th.U., that the experienced user of a gas-cooker has become accustomed to its flexibility and the large range of application of the hotplate, which, when attempted on the electric hotplate, results in an ugly shock. The electrician endeavours to console the user by telling him or her that it is only a question of refinement—a delicate care in the employment of the cooker—and all will be well. Now it is very easy to test the thermal and money cost of performing a given operation by the rival cookers, by doing the same work under the same conditions in both. If one ascertains from the meters the input of gas and electricity (the calorific power of the former is stated on every gas account rendered on the therm basis), then one knows the amount of heat expended usefully and in waste without going into all sorts of complexity to ascertain how and where the thermal energy goes. That is simple and truthful; so simple and truthful that we have been both amused and amazed at the essay of Mr. E. G. Ross, Assoc.M.Inst.E.E., in a recent issue of the "Electrical Review," to show that the idea of uneconomy even on the electric hotplate is due to misconception, and that by calculation it can be found that there is an actual money saving compared with the gas-cooker.

**"Economy" of Electric Cooking.**

Mr. Ross shows wonderfully profound thought, and an excellent capacity for arithmetical gymnastics, so that a plain method of making a test and calculation is displaced by something absolutely complex. We should like his article to be submitted to a layman, and see what he can make of the assumptions, crude testings, and gradually mounting-up totals for gas and subtractions for electricity, which are intended to show that electric cooking is at least 15 p.ct. cheaper overall than gas cooking—"other conditions being equal." Let us see how our critic arrives at this. He prefaces his singularly constructed statement with the remark that the advantage of electricity over gas for cooking in point of price is due entirely to the economic conditions attendant upon its use; and it is not true to say that it is intrinsically cheaper than gas for the purpose. We suppose that the "intrinsically" intends to convey that the heat energy of the gas is cheaper than that of electricity, but in its application it becomes dearer. But the argument which follows, if it is intended to prove anything, is (in our opinion) directed to showing that electric cooking is "intrinsically cheaper" than gas cooking. Mr. Ross assumes that for a given article to be cooked 1000 B.Th.U. are necessary over one hour, and that the efficiency of the cooker is 100 p.ct. The gas required is therefore 0·01 therm. As there are 3420 B.Th.U. in 1 KW.-H., the equivalent electrical energy required is 0·293 KW.-H. He takes as a "reasonable" price for gas 10d. per therm, and ¾d. per KW.-H. for electricity. How many places supply current for heating at ¾d. per KW.-H.? However, on his own figures, the respective costs are 0·1d. for gas and 0·22d. for electricity. Of course, there are no gas or electric boiling rings which have an efficiency of 100 p.ct. Thus there succeed the twistings and writhings of Mr. Ross to prove the ultimate thermal and therefore cost inferiority of gas, while it could be done by a more simple process.

**The Inception of the Argument.**

We cannot repress a smile over the first point in the much-laboured case. Mr. Ross says "the prime economical disadvantage of gas lies in the fact that a current of air is absolutely essential for the maintenance of the heat—involving (*a*) a free ingress of air to the boiling-ring, and (*b*) a definite minimum distance between the cooking utensil and the burner, so that no back-pressure is put upon the jet." The science underlying that statement is as difficult to find as is the reason for its appearance in a technical paper. There can be no combustion for the development of heat without air is available; and the fact of complete combustion being obtained shows that, by the physical and chemical processes involved, the gas is—by the aid of the air, and in the circumstances of its use—developing its full measure of heat. As to the distance between the cooking utensil and the burner, this is necessary in order that the flames may not be checked, and so deprived of the opportunity of developing their full potentiality in supplying heat to the vessel above. Then our learned friend proceeds: "From data variously collected, it would seem that when boiling for approximately four hours in a pot about 5½ in. diameter, anything from a minimum of 30 p.ct. to a maximum of 60 p.ct. of the available gas heat is lost, due to these essential conditions of burning. This fact is probably the most serious with which the gas people have to contend." In passing, it may be pointed out that, if a pot only 5½ in. diameter was kept boiling over a ring of gas-jets for approximately four hours, we are afraid that, long before that time had expired, there would be nothing left in the pot to boil—unless, of course, it was merely kept simmering by nothing but a trace of flame. As to the loss of heat due to the reasons our friend suggests, his minimum of 30 p.ct. is nearer normal practice to-day than the maximum of 60 p.ct. As a matter of fact, the modern boiling-ring on the hotplate of a gas cooker is quite capable of developing 70 p.ct. efficiency. We ask our friend whether he can suggest to us any electric boiling plate which will at any part of its life and continuously give an efficiency of 70 p.ct.; and is it not the fact that most electric hotplates will only develop (when new) 40 to 45 p.ct. efficiency, and that a diminishing quantity with use? It is no use Mr. Ross indulging in generalities if he cares to reply, because experimental work has satisfied us on this particular point. Yet he deliberately states in his article that the electrical heat loss "appears" (which is not very positive) to vary from a minimum of 5 p.ct. to a maximum of 12 p.ct., because of the fact that the pot bottom may be as little as ¼ in. from the heating point. If he means by this that electric boiling plates will develop 88 to 95 p.ct. efficiency, we cannot accept the statement. However, Mr. Ross makes out that, applying the correction for this particular loss, 1450 B.Th.U. would be required with gas for the actual heat input of 1000 B.Th.U. to the article to be boiled, while the corrected electric power equivalent is 1085 B.Th.U. It is seen from his own admission that the efficiency figures have been procured by more or less loose methods. He says they were obtained by time measurement, combined with meter readings of consumption, and also by "approximate" calorimetric methods, and he refers to the results as "reasonably representative." It is usual in work of this kind to adopt scientific processes; and, in order to judge of reliability, we should like to know more as to what Mr. Ross actually did in this respect. On the evidence of his articles we maintain distinctly and deliberately that they are not reliable. He has to face the fact that if he is right, then prior scientific work in this connection has gone astray, though carried out by men of noted scientific attainments.

**Its Development.**

Our critic seeks to show that we are guilty of further losses to add to our previous waste delinquencies, and to narrow still more the difference between the consumption of heat energy supplied by gas and that by electricity. He has found that the ribs across the hotplate for supporting the cooking utensils are responsible for a large loss of heat by conduction and radiation. Mr. Ross appears to be ignorant of the fact that the gas industry found that out long ago; hence the reason that the construction of the top of most modern types of gas cooker is such that no bars intersect the flames. The point might have applied a few years ago, but there is no need

**Further Gas Losses!**

to-day to introduce the criticism, as it does not apply to the modern cooker. As a matter of fact, we have the authority of Dr. Hartley (who has made more cooker tests probably than any other chemist or physicist) that the best gas cookers of the present day show a saving of from 25 to 33 p.ct., compared with those of the pre-war period. Mr. Ross admits the difficulty of giving definite data for heat losses; and then we have another example of how crudely the data he uses have been arrived at. He safeguards himself at this particular point by the use of the word "if." "If thermometer readings are any rough indication, then for cookers of the same output, which very generally have the same top perimeter and weight of metal, it will be found that, after the four hours' boiling referred to above, and for the same cooking, of course, the following approximate figures hold—viz., temperature round perimeter of top plate for gas cooker 150° to 200° Fahr.; for electric cooker, 50° to 100° Fahr. The average values are 175° and 75° Fahr. respectively." Then we are treated to a little reference to the specific heat of iron; followed by the statement that the heat necessary to raise this mass to from 50° to 75° Fahr. works out at about 51 B.Th.U. Similarly to raise it from 50° to 175° Fahr., about 255 B.Th.U. are required. These values, he states, will further alter the heat inputs in the example; and these now become: Gas input, 1705 B.Th.U. Electricity input, 1136 B.Th.U. per hour. To make it still more intricate, he holds that the quantity of foodstuffs required to be cooked is with the electric cooker from 18 to 25 p.ct. less than that required for cooking by gas. Whence he gets these figures, Heaven only knows. "Foodstuffs" which are cooked on a gas or any other cooker have a tremendous range; and we cannot imagine that any foodstuffs would (cooked by heat supplied by one agent, and with equivalent temperatures and other conditions) play such foolish tricks as to reduce themselves more with the heat supplied by one means than by another. However, the compiler of this queer article takes credit for this monstrous proceeding on the part of foodstuffs. He says "it is advisable to consider two identical completely cooked materials, it being recognized that the quantity of material necessary originally for the electrically cooked meal must be 21½ p.ct. (average) less than that required for the gas cooked meal." In other words, for a gas heat input of 1000 B.Th.U., the corrected electrical heat input is only 785 B.Th.U. Correcting the latter figure for the various losses previously considered, the ratio becomes 1705/903.

**Finally.** So, by these pretty contortions, Mr. Ross eventually arrives at the conversion of the ratio into a price ratio on the basis of 10d. per therm for gas, and ¾d. per unit for electricity. It becomes 0·17d./0·199d.—that is, the gas charge is less by 14½ p.ct. than that for electricity. Again this remarkable investigator says that observations have shown that, with the electric cooker the net effective cooking time—*i.e.*, the time during which current was actually flowing through the elements—varied from 60 to 87 p.ct. of the time during which gas was burned for the same general meals. That is diametrically opposed to the findings of other observers. Taking the average at 75 p.ct., he holds that economically the ratio obtained must further be corrected to take account of the consumption of 25 p.ct. less energy with the electric cooker, due to the fact that it is more or less impracticable to keep on extinguishing and relighting the gas, while (say) "pouring" potatoes, cabbages, and the like. Hence the consumption ratio becomes 1705/689; and the charge ratio 0·17d./0·151d. The electricity charge is now 11 p.ct. cheaper than the gas charge. Concluding, Mr. Ross reiterates that, intrinsically, electric cooking is definitely not cheaper than gas cooking; but economically it is so to the tune of approximately one-eighth. He has, however, the good conscience to acknowledge that he has taken a very low price for the unit of electricity, and that even then the difference is so narrow between the competitive rates that the price of ¾d. is much too high for successful competition against gas for cooking purposes. It only requires, as he recognizes, a little lack of operative skill to cause the power bills for electric cooking to take surprising flights. But after all this laboured construction, there is a simpler plan of arriving at efficiency and costs than the complex one which Mr. Ross apparently prefers to adopt, and which would simply confound the consumer. The input of thermal energy required for performing a definite amount of work covers all the debits and credits which he has discovered, and the price of that input is ascertainable in every case. After all this, will Mr. Ross accept a challenge to do an equal amount of work with an electric cooker (oven and hotplate) as with a gas cooker, at a cost for "fuel" of ¾d. per unit for electricity and 10d. per therm for gas, or 3420 B.Th.U. as against 7500 B.Th.U. for ¾d. in each case?

**Growing Gas Consumption Per Head.**—In a comparison between certain figures for 1923 and 1924, the Pacific Gas and Electric Company, of San Francisco, report that during last year the number of consumers in their territory increased by 21,706; while the gas sales per consumer rose from 39,800 c.ft. to 42,400 c.ft.

## FORTHCOMING ENGAGEMENTS.

[*Secretaries of Gas and Kindred Organizations are asked to assist in making this diary of events as complete and useful as possible by sending the earliest intimation of all meetings.*]

**May 21.**—BRITISH COMMERCIAL GAS ASSOCIATION, MANCHESTER DISTRICT (WEST RIDING OF YORKSHIRE SECTION) Conference, in the Harlow Manor Hydro, Harrogate, under the presidency of Mr. Francis Barber, the Chairman of the Harrogate Gas Company. Luncheon with the Chairman and Directors of the Company will precede the business, which will include an address on "Light and Health," by Mr. R. Veitch Clark, M.A., M.B. (Medical Officer of Health to the City of Manchester), and a paper entitled "Gas as a Public Service," by Mr. Frank H. Robinson, Assoc.M.Inst.C.E. (Engineer and Manager to the Harrogate Gas Company).

**May 22.**—Quarterly meeting of the MANCHESTER DISTRICT INSTITUTION OF GAS ENGINEERS, at the Harlow Manor Hydro, Harrogate. Mr. Frank H. Robinson, of Harrogate, will preside; and a general discussion will be opened by Mr. W. B. M'Lusky, of Halifax. A luncheon will be given by the Chairman and Directors of the Harrogate Gas Company, following which the members will inspect the gas-works.

**May 23.**—Half-yearly Auxiliary Meeting of the NORTH OF ENGLAND GAS MANAGERS' ASSOCIATION, at the Armstrong College, Newcastle-on-Tyne, at two o'clock. The chair will be taken by Dr. Geoffrey Weyman, of Newcastle. There will be an inspection of the Chemical, Physical, Engineering, and Metallurgical Laboratories of the College.

**May 23.**—Meeting of the WALES AND MONMOUTHSHIRE JUNIOR GAS ASSOCIATION, at Treforest. Dr. Illingworth will give an address on "Low-Temperature Carbonization." Subsequently the members will adjourn to the Council Buildings, Pontypridd, to hear an address by Mr. D. Muir on "Methods Adopted to Deal with Leakage in Colliery Districts."

**May 26.**—Seventh annual general meeting of the NATIONAL GAS COUNCIL, at the Hotel Great Central, Marylebone Road, N.W., at 11.30. The President (Mr. D. Milne Watson) will present the annual report and statement of accounts.

**May 28.**—Meeting of the WALES AND MONMOUTHSHIRE DISTRICT INSTITUTION OF GAS ENGINEERS AND MANAGERS, at Porthcawl. Mr. H. D. Madden, of Cardiff, will read a paper on "General Sales Propaganda."

**May 29.**—Sixth annual general meeting of the CHEMICAL ENGINEERING GROUP OF THE SOCIETY OF CHEMICAL INDUSTRY, at the Chemical Industry Club at 8.15. Mr. C. S. Garland, B.Sc., A.R.C.Sc., F.I.C., Chairman of the Group, will preside. The meeting will be preceded by an informal dinner in the Club at seven o'clock.

**June 4.**—Joint meeting of the DISTRICTS OF THE SOUTHERN ASSOCIATION OF GAS ENGINEERS AND MANAGERS, at Bournemouth.

**June 5.**—Visit of the SOUTHERN ASSOCIATION OF GAS ENGINEERS AND MANAGERS to the works of the Bournemouth Gas and Water Company.

**June 6.**—Annual outing, at Anstruther, of the SCOTTISH JUNIOR GAS ASSOCIATION (EASTERN DISTRICT).

**June 9-11.**—Annual general meeting of the INSTITUTION OF GAS ENGINEERS, in the Great Hall of the Institution of Civil Engineers, Great George Street, Westminster.

**June 10.**—Annual general meeting of the ASSOCIATION OF STATUTORY INSPECTORS OF GAS METERS, at the new County Hall, Westminster. The afternoon will be devoted to a visit to the Finsbury gas meter testing office.

**June 11.**—Visit of the COKE OVEN MANAGERS' ASSOCIATION (MIDLAND SECTION) to the Barugh plant of Low-Temperature Carbonisation, Ltd.

**June 12.**—Visit of the INSTITUTION OF GAS ENGINEERS to Derby.

**June 20.**—Visit of the LONDON AND SOUTHERN DISTRICT JUNIOR GAS ASSOCIATION to the Cambridge Gas-Works.

**July 9.**—Visit of the COKE OVEN MANAGERS' ASSOCIATION (MIDLAND SECTION) to the works of Messrs. Stainby and Lyon, of Knottingley.

**Institution of Civil Engineers' Council.**—The ballot for the election of the Council, at the annual general meeting of the Institution of Civil Engineers, resulted in the following elections: President, Sir William Henry Ellis, G.B.E., D.Eng. (Sheffield); Vice-Presidents, Mr. Frederick Palmer, C.I.E.; Sir Archibald Denny, Bart.; Mr. Ernest F. C. Trench, C.B.E., M.A., B.A.I.; and Captain Matthew H. P. Riall Sankey, C.B., C.B.E., R.E. (ret.). Other members of the Council include Sir Dugald Clerk, K.B.E., D.Sc., F.R.S.; Prof. W. E. Dalby, M.A., F.R.S.; Sir Robert A. Hadfield, Bart., D.Sc., D.Met., F.R.S.; Sir Henry P. Maybury, K.C.M.G., C.B.; and Sir Richard A. S. Redmayne, K.C.B., M.Sc. This Council will take office on the first Tuesday in November next.

## INSTITUTION OF GAS ENGINEERS.

### Balloting List.

The following candidates have been approved for the next balloting list of the Institution of Gas Engineers:

**For the Class of Member.**

Ashworth, Richard, Engineer, Manager, and Secretary, Tamworth Gas Company.
Calderwood, Robert John, Gas and Water Engineer and Manager, Spalding Urban District Council.
Greenough, Peter, Gas and Water Engineer, Hindley Urban District Council Gas Department.
Robertshaw, Walter Livsey, Works Manager of the Ayre's Quay Works of the Sunderland Gas Company.
Surtees, Gilbert, Engineer and Manager, Uttoxeter Gas-Works, Ltd.
Watson, Alfred Thomas, Engineer and Manager, Rushden and Higham Ferrers District Gas Company.
Whatley, Greville John, Assistant to Mr. F. H. Jones, Westminster.

**For the Class of Associate Member.**

Carmichael, Stanley, Works Chemist, Avon Street Gas-Works, Bristol.
Dupont, Fernand, Chief Assistant Engineer at the Works of the Neath Corporation Gas Department.
Ely, Robert John, Assistant Manager of the Riddings District Gas Company.
Fall, Frederick Percy, Engineering Assistant and Chief Draughtsman to the Engineer of the Sunderland Gas Company.
Robson, Colin, Technical and Chemist Assistant, Elswick Gas-Works, Newcastle-on-Tyne.
Winch, Egbert Harold, Second Assistant with the Cambridge University and Town Gas Light Company.

**Students.**

The following candidates for studentship have been approved:

Calderwood, Robert Wallace, Assistant at the Gas-Works, Spalding.
Ware, Gilbert Charles James, Articled Pupil, Redhill Gas Company.
Williams, Rowland J., First Assistant Engineer and Manager, Gas-Works, Abertillery.

## NATIONAL GAS COUNCIL.

### Central Executive Board Meeting.

The Central Executive Board of the National Gas Council met on Tuesday, May 12, at No. 28, Grosvenor Gardens, S.W. In the absence of Mr. D. Milne Watson, the chair was taken by Mr. William Cash, F.C.A. (Vice-Chairman).

Nomination of Candidate for the Office of President.

It was reported that no nominations had been received for the office of President; and Mr. Milne Watson was unanimously nominated as candidate for the Presidency for another year.

Draft Annual Report and Statement of Accounts.

The draft annual report and statement of accounts were considered, amended, and approved for submission to the annual meeting.

Roads Improvement Bill.

It was reported that a conference of Public Utility Associations convened by the Council had met and considered this Bill, and had come to the conclusion that a protective clause in favour of statutory undertakings was required. Certain other amendments were moved, on the suggestion of the National Gas Council alone, for the purpose of ensuring:

(*a*) That the road construction experiments should be carried out only by an organization interested in the production of that material with which the road was being constructed.
(*b*) That the object of the experiments should be to discover a method of embodying British produced materials only—*e.g.*, tar, in contradistinction to bitumen.
(*c*) That there should be a representative Committee set up, similar to that appointed under the Traffic Act, to advise the Ministry as to the scope and nature of the experiments.

Certain assurances in connection with these experiments were obtained from the Minister when the Bill came before the Standing Committee.

Newport Corporation Bill.

It was reported that the Newport Corporation electricity undertaking had endeavoured to lay-down stipulations from time to time to the effect that the occupants of houses on estates belonging to the Corporation should use electricity for lighting and other purposes. At the instance of the Newport (Mon.) Gas Company, the matter had been argued at length before a Select Committee of the House, who agreed to the insertion of the following sub-clause:

(4) The Corporation shall not make or impose under the powers of this section any term, condition, or restriction with respect to the form of light, heat, power, or energy to be used in any house, shop, office, warehouse, or other building, or on any lands, or with respect to the taking from any particular local authority, company, body, or person of any form of light, heat, power, or energy.

Rating and Valuation Bill.

The provisions of the new Bill were discussed, particularly in relation to the new proposals which were made in connection with public utility undertakers. Consideration was also given to the suggestions in the Bill with regard to the rating of machinery.

After full discussion, the same was remitted to the Special Rating Committee of the Council.

Factory and Workshop Act, 1901—Chemical Regulations, 1922.

It was reported that the "certificates of exemption" which had, after considerable delay, been granted by the Home Office to certain of the smaller gas undertakings, whose claims for exemption had been submitted by the Council, were altogether inadequate, and afforded no relief whatever to the undertaking.

A protest was being made both by the Council and by the gas undertakings concerned, with a view to obtaining further concessions in regard to these Chemical Regulations.

Tar Exhibit at Wembley.

It was reported that a stand had now been erected at Wembley in the Chemical Hall of the Exhibition, and was in charge of an expert on tar for road purposes. It was also reported that the attention of road surveyors and chairmen of Highways Committees throughout the country would be drawn to this exhibit, and that they would be invited to visit it.

The Board authorized the Council's Tar Committee to reserve space for a road tar exhibit at the Road and Transport Exhibition, to be held in November next.

Illuminating Engineering Society.

It was agreed that the Council should be represented upon the Council of the Illuminating Engineering Society, and that Mr. D. Milne Watson should be asked to represent the Council thereon.

Deputation of Scottish Municipal Representatives to the Board of Trade.

A deputation to the Board of Trade was reported to have taken place on April 6, consisting of Mr. Campbell, of Dunfermline (President of the North British Association of Gas Managers), and Mr. J. W. Napier (Secretary of the Scottish District Executive Board of the Council), together with Mr. E. J. Fottrell. The deputation assured the officials of the Board of Trade that the application of the Gas Regulation Act to Scotland had been very satisfactory and successful, and there was no objection to it whatever, so far as the larger undertakings were concerned. It was felt, however, that, with regard to the smaller municipal undertakings, there were certain serious difficulties in coming under section 1 of the Act—*inter alia*, the additional expense of providing the necessary testing station and apparatus, the fee of the gas examiner, &c. In cases where an undertaking has a small output of gas, with a limited number of consumers and a very small staff, the application of Orders to such undertakings was likely to have a detrimental effect.

It was reported that this deputation had been sympathetically received; and it appeared probable that the thermal system of charging would not be imposed upon the very small undertakings.

Conference between Public Utility Associations at the Ministry of Transport.

A conference was reported on the 7th inst., at the Ministry of Transport, between representatives of gas, water, and electricity interests on the one hand, and the County Councils' Association, the London County Council, representatives of the Rural and Urban District Associations, and other bodies interested in highway construction. It was reported that the matter arose out of a memorandum of the County Councils' Association, in which they endeavoured, in brief, to remove all the existing rights of statutory undertakers in regard to mains and cables in highways, and, in fact, to make them revert to the position of non-statutory undertakings.

As a result of this conference, a small Sub-Committee had been set-up, which was meeting immediately, and upon which the gas industry was represented; and it was hoped to agree general principles, and to draw-up some agreed clauses satisfactory to all parties.

It was further reported that the public utility undertakers were asking for representation upon the new Committee set-up by the Home Secretary in connection with the law on the diversion of highways.

Central Executive Board—June Meeting.

It was agreed that, inasmuch as the meeting of the Institution of Gas Engineers would be taking place on Tuesday, June 9, the next meeting of the Central Executive Board should take place on Monday, June 8, at 3.30 p.m.

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**Will.**—Mr. Samuel Peter Austin, a Director of the Sunderland Gas Company, left unsettled property to the value of £123,684 (net £123,338).

**British Engineers' Association.**—The new President of the British Engineers' Association is Mr. H. J. Ward, of Messrs. J. & E. Hall, Ltd. (Dartford). He succeeds Sir Ernest W. Petter, who retired after holding office for two years.

# WEMBLEY, 1925.

A week has performed wonders at Wembley; and no one could possibly in a single day see all that there is to be seen, though it appears to be generally agreed that large numbers of people have so far kept away by rumours of unreadiness. This is a mistaken attitude to adopt; for just now—when everything is perfectly new, when the grounds are a dream of beauty and freshness, and when the summer rush has not yet begun—is an excellent time to select for a visit. There is plenty of room to move about—too much, perhaps, may be the visitor's first reflection on entering, failing to bear in mind the vastness of the place. As a matter of fact, favoured by the glorious weather of last week—real Wembley weather, bright but not too hot—there had been, one gathered on Friday, up to that date at any rate, greater attendances than for the corresponding days last year. This is good augury for the success of Wembley, 1925. What the authorities desire should be inculcated in the Londoner is the "Wembley habit." Success in this respect would spell success to the Exhibition; for Wembley is within reach of a population of millions. With regard to the character of the attendances recorded, one learned on inquiry at a selling stall that "steady business had been done;" while the reply in connection with a propagandist exhibit was that "the right kind of people have been coming along."

### Visits of Royalty.

Including the day of the opening, and a visit last Saturday evening to the spectacular display in the stadium, the King and Queen have already shown how close at heart they have the Exhibition by going to Wembley three times. On Thursday, they made a lengthy tour, and on all hands one hears of their keen interest in everything that they saw. Indeed, pictorial proof of this is to be found in the "Journal" to-day.

While in the Palace of Industry, the Royal Party made a full inspection of the Gas Exhibit; and here the King gave gratifying evidence—by a reference to the "Seven Ages of Woman"—of the lasting impression he had gained of last year's display.

### Press View of the Gas Exhibit.

The Gas Exhibit was spic and span on Friday, when it was visited by a large number of representatives of the Metropolitan and Provincial Press, who were received by Mr. F. W. Goodenough, Mr. W. M. Mason, Mrs. M. A. Cloudesley Brereton, and others officially connected with the Exhibit. Among those present was noticed Alderman George Clark, J.P., M.Inst.Mech. E., a Past-Chairman of the Society of British Gas Industries.

The visitors appeared to be remarkably pleased with all that they saw in the Exhibit. This was only natural, for good as last year's arrangements were, the Gas Exhibit Committee and their Architect (Mr. H. Austen Hall, F.R.I.B.A.), and everyone responsible for carrying out their wishes, have on this occasion beaten their own record. A full description of the Exhibit will be found on pp. 458-460 of last week's "Journal," but the completed display is brighter and more live than it would be possible for any formal written description to indicate. In the Overseas Dominions Hall, in particular, there is a marvellously artistic effect—as one of the lady members of the party remarked, "the beauty of the setting of the Exhibit is perfectly wonderful." In a sentence, it has been appreciated that the arrangement of exhibits is an architectural problem which has to be dealt with in an architectural way; and Mr. Austen Hall has succeeded to a remarkable degree in doing this. While mentioning names of those responsible, omission must not be made of the contractors to the Committee, Messrs. Osborne and Co., of No. 2, Grafton Street, Bond Street, W., who naturally pride themselves on the results of their work.

In the case of the sight-seeing visitor, to look at one of the prettily-executed little scenes depicting the multifarious services of gas in the homes of the Empire, means to make an inspection of them all. The present or prospective gas consumer, domestic or industrial, will find examples of what is best in the way of apparatus for its utilization; while the housewife, desirous of gaining more knowledge with regard to cooking generally, or of one particular branch of it, will find herself immeasurably better off than was possible in 1924, owing to the great improvement effected by the provision of a separate quiet hall, 50 ft. square, devoted to frequent practical lectures and demonstrations.

### Ask for Empire Products.

And more than cookery lectures with practical illustrations—highly important as these are to the home-life of the people—is to take place in the Demonstration Hall connected with the Gas Exhibit. Mention was made last week of the fact that a series of Empire food demonstrations is being organized to show that the Empire produces almost every kind of food that the consumer can require. There will be shown, not only a wide range and variety of Empire products, but the best and most economical ways of preparing them for the table. The object of these demonstrations is to familiarize the British public with the food products of the Motherland and Dominions and Colonies; and, in indicating their country of origin and the various ways of preparing them, to illustrate the almost limitless variety of food products within the Empire and the economic advantage of using them.

The Gas Exhibit Committee have promised to place all necessary plant and a staff of trained demonstrators at the disposal of the Empire Food Demonstrations Committee, on which the Women's Section of the British Empire Exhibition, the Fellowship of the British Empire Exhibition, the British Women's Patriotic League, the Empire Food Campaign, and the British Producers' Organization each have a representative. It is intended to give four cooking demonstrations each day, preceded by a short talk upon the nature and origin of one of the products to be used and the wholesale distributive agencies where it may be obtained. It is hoped to include every Empire food product, and to illustrate to the general public all such foods which are, or should be, available to United Kingdom markets. The British housewife who purchases Empire food products combines household economy with the exercise of a proper Imperial sentiment.

### Ashtead Potters.

Another thing the Gas Exhibit Committee have done, which will meet with approbation far beyond the confines of the gas industry, is to provide space for a very interesting show of pottery-firing by the disabled ex-Service men employed by the Ashtead Potters, Ltd., Victoria Works, Ashtead, Surrey. Readers may be reminded that Sir Lawrence Weaver (Director of United Kingdom Exhibits) is Chairman of this undertaking, which it is hoped to make a permanent industry that will keep the men employed for the rest of their lives. All the profits (if any) will go back to the men employed; so that those making purchases of any of the pretty little articles on show in the Gas Exhibit will be supporting a thoroughly good cause. The Queen showed in a practical manner that the things on view met with her approval.

### "Delaygue" Refrigeration Plant.

Another "working" display for which visitors to the Gas Exhibit—particularly during the week-end hot spell—have been manifesting a strong partiality, is the "Delaygue" refrigeration plant, the patents for which are owned by Refrigeration Developments, Ltd., of No. 86, Grays Inn Road, London, W.C.; the sole manufacturers for the British Empire being Messrs. H. J. West & Co., Ltd., of London and Saxilby. These appliances can be had in small sizes designed specially for ordinary household use, which are capable of keeping an average-capacity safe at a temperature of 38° Fahr. for 24 hours or more. The apparatus works on what is known as the absorption process; but no elaborate heating apparatus is necessary. At one heating—which takes about 45 minutes over a gas ring—approximately 3 lbs. of ice or 8 lbs. of ice cream can be obtained. The machine can be used indefinitely without recharging; so that the running cost is confined to that of the gas consumed for heating. The liquid employed is capable of giving off a large amount of refrigerating material by means of the application of a very small quantity of heat.

### At the Sign of the Jolly Jack Tar.

There has been an addition to the British Road Tar Exhibit of the National Gas Council in the Chemical Section of the Palace of Industry. The photograph reproduced on p. 465 of the "Journal" for the 13th inst. showed the tar-macadam road passing round "The Jolly Tar" inn; but it revealed only a few minor branches of an apple tree in full blossom, which is to be found in the opposite corner of the exhibit. This tree, with a wooden seat surrounding it, imparts a delightful countryside touch to Mr. Norman Wilkinson's work; and now this effect has been heightened by placing on the tree two singing birds, which attracted the attention of the Queen during her visit last Thursday. Recording the incident, "The Times" said that Her Majesty "was surprised to find that art had simulated Nature so perfectly." The "Evening News" also had something to say on the matter: "A call was made by their Majesties at 'The Jolly Tar'—a house got up to look like an old English hostelry. The only fluid it contains, however, is tar used in road-making—not a suitable beverage for a day like this! What drew the notice of the Queen particularly was a pretty tree of apple blossom in the yard of 'The Jolly Tar.' Birds were singing in this tree quite sweetly. They are artificial, and the Queen expressed wonder at the close imitation of Nature."

The serious side of this display on behalf of "British Tar for British Roads" would, from all accounts, appear to be no less successful than its purely artistic side.

### Glenboig Gas Retorts.

One of the displays in the Palace of Housing and Transport in which "Journal" readers will have a special interest is that of the Glenboig Union Fire Clay Company, Ltd., of Glenboig, and No 48, West Regent Street, Glasgow. They make special bricks for retorts and coke ovens, and claim that Glenboig fireclay is peculiarly fitted for the manufacture of gas retorts—being capable of resisting the highest heats, and combining with this characteristic the equally important quality of resisting sudden changes of temperature in a peculiarly high degree. Every detail is carefully considered by them, with a view to the production of retorts fitted to resist the higher temperatures and the more severe tests to which they are subjected in the modern

## VIEWS OF THE GAS EXHIBIT.

**In the Palace of Industry, British Empire Exhibition.**

[Photo. John H. Avery & Co.

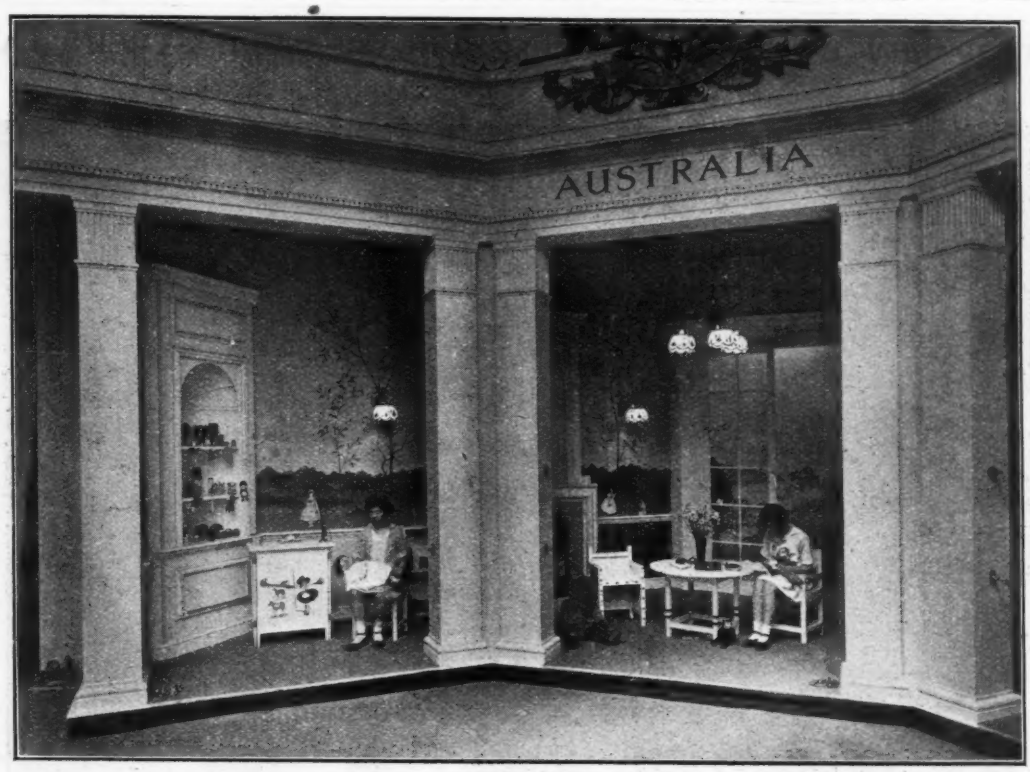
[Photo. John H. Avery & Co.

systems of gas making. The Company claim to be the largest manufacturers of gas retorts in Great Britain; and that Glenboig bricks have long been famous is proved by the fact that two highly appreciative references to them are to be found in Vol. I. of "King's Treatise on the Science and Practice of the Manufacture and Distribution of Coal Gas," which was published many years ago.

### Die Casting by Gas.

Mention was made in last week's "Journal" of the fact that the Monometer Manufacturing Company (1918), Ltd., of Bridge Street, Barrow-in-Furness, and Savoy House, No. 115, Strand, London, W.C., are in the Palace of Transport, again showing examples of their gas-consuming industrial appliances. Among these is their patent pressure die casting machine, which is made in one standard size.

The capacity of the pot is 200 lbs. of white metal, the plunger displacing 40 lbs. at each stroke; and the machine can deal with any metal with a melting-point up to 1000° Fahr. The machine is complete in itself, and only requires to be connected-up to a 1-in. town gas main—no fans or blowers being required. The temperature of the metal is controlled by means



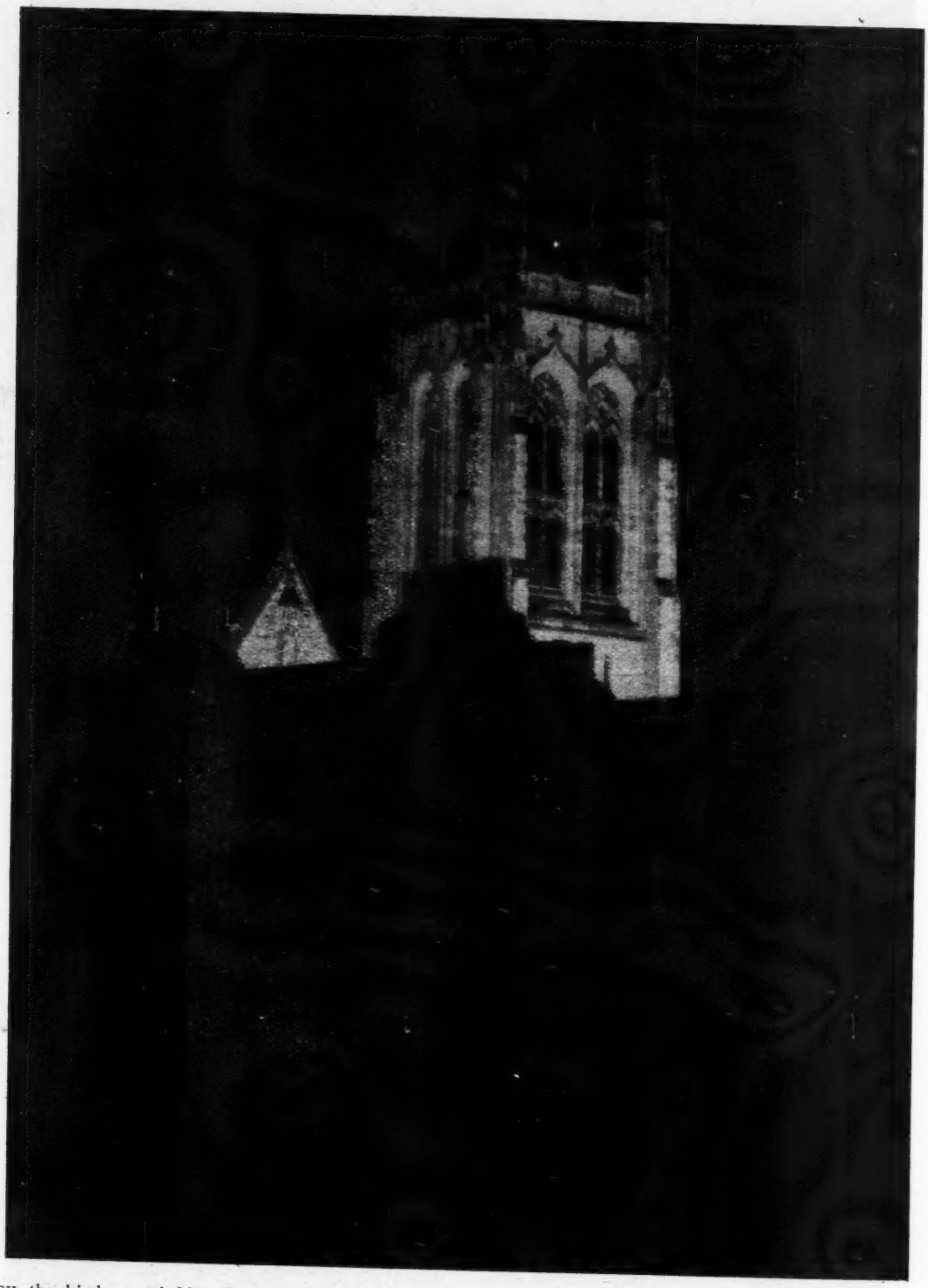

[*Photo. John H. Avery & Co.*

**HER MAJESTY THE QUEEN INSPECTING MANTLE MAKING.**

Lighting Trades, Ltd., have this year installed machinery for the making of gas mantles. The exhibit is situated in Nobel Hall, Bay E, Palace of Industry; and it is attracting considerable attention.

of a patent heat regulator, which prevents it from overheating and burning. This regulator is adjustable to any temperature, and once set requires no further attention. The "Monometer" die caster has a patented mixing device at the bottom of the plunger, which prevents the accumulation of the heavier metal at the bottom of the pot, at the same time ensuring a homogeneous alloyed casting. The melting pot is interchangeable; and there are no valves or other complicated working parts on the machine which might cause trouble. Owing to the design of the plunger and gearing, a big pressure can be obtained, which enables very intricate and thin close-grained castings to be made.

# PHOTOGRAPHY BY THE LIGHT OF HIGH-PRESSURE STREET LAMPS.



Through the kindness of Mr. R. S. Ramsden, General Manager and Engineer of the Leamington Priors Gas Company, the permission has been obtained of Mr. W. Walden Hammond (also of Leamington) and the Editor of the "Amateur Photographer," to reproduce in our pages the above interesting photograph. The title of the picture is "Our Parish Church—Night." Mr. Hammond informs Mr. Ramsden that, when the photograph was taken, there was no moon, and the only light was that of the high-pressure incandescent gas-lamps on the tramway standards and that from the shop windows on the Parade. The block was placed at our disposal by the "Amateur Photographer"; and we thank them for their courtesy.

**Small Stations at the Pithead.**—Where a town is closely situated to a colliery, there is perhaps greater reason for a generating station being constructed there sufficient for its supply than for a super-station to serve many towns and generally over a large territory. In the former case, the question of condensing water, transmission costs and losses, safety, and reliability would not be so important as in the latter. The Workington Electric Power Company have built a station at the St. Helen's Colliery, Siddick, near Workington; and it appears to be a joint enterprise on the part of the Company and the Corporation. The former have spent upon it £40,000, and the latter £8000, whereas, had the Corporation carried out a scheme of their own, an expenditure of £50,000 would have been entailed. It is stated that the Corporation are going to receive current at a price which would not have been possible save for the utilization of what was formerly waste heat, but is so no longer. We look forward to hearing further particulars of the working.

# PNEUMATIC HANDLING AND REVIVIFICATION OF OXIDE.

### Simon Plant Installed at Nechells Gas-Works, Birmingham.

It has been abundantly proved by practical experience with a pneumatic plant at the Beckton Station of the Gas Light and Coke Company that spent oxide is definitely improved and revivified in the process of being handled pneumatically. As a matter of fact, at Beckton, material has been returned to the boxes within 24 hours, with satisfactory results. Mr. W. B. Leech, the Engineer at Beckton, has stated that the saving effected by the pneumatic plant over the old method of handling and revivifying oxide is in the neighbourhood of 2s. 6d. per ton.

It is not surprising, therefore, to find that other gas undertakings are adopting the pneumatic system of oxide handling; and Messrs. Henry Simon, Ltd., who were responsible for the plant at Beckton, have carried out several similar installations for gas companies, and have just completed the erection of a pneumatic oxide handling plant for the Birmingham Corporation at the Nechells Works. This plant has been installed in connection with a scheme for additional purifiers, which has recently been completed, and has been arranged to deal with the spent oxide from these new boxes.

The method of operation is simple, and the plant has been so arranged that it can be moved under its own power to any desired point on the various purifier floors. The floor space available over the new boxes for spreading out the spent oxide is 57,000 sq. ft.; and the whole of this area is reached by the pneumatic plant by means of rail tracks and turn-tables. The oxide, after passing through the pneumatic plant, can be delivered to any part of this floor by means of portable blowing-pipe connections. The spent oxide is lifted from the boxes by means of travelling grab cranes, and dumped into a feeding truck which is a separate unit of the pneumatic plant. From this truck the oxide is loaded on to an inclined mechanical conveyor which carries it to a hopper arranged above the disintegrator, and thence to the disintegrator itself, where the oxide is reduced to the desired degree of fineness. The powdered material falls from the disintegrator outlet into a rotary seal, which releases the oxide without leakage of air, and passes it into steel pipes, through which it is carried by a stream of air under pressure to the desired point, and there blown out on to the purifier floor. The plant has a nominal capacity of 10 tons per hour. The oxide is thoroughly aerated during this process, and complete revivification is obtained in a short period. The oxide, being subject to violent bombardment from the air stream during its passage through the pneumatic pipes, arrives at the point of delivery with the oxidization process more or less complete, and in a fit state for early return to the purifier boxes.

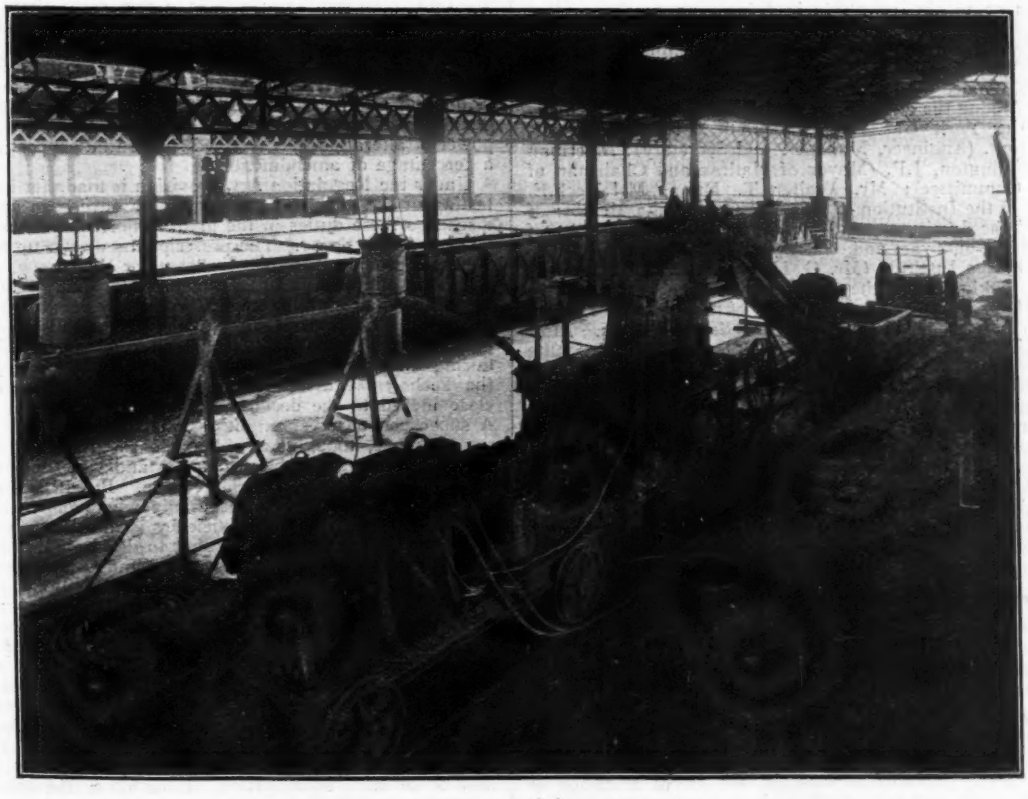
Carrying and hand spreading of the oxide is entirely obviated—a very valuable saving in labour thus being secured. The pneumatic pipe from the plant is supported on portable wooden trestles, and is provided with quick-coupling joints permitting additional sections of piping to be added easily and quickly, as required.

The pneumatic plant itself, the inclined conveyor, and the feeding truck are mounted on flanged wheels, and are arranged to travel on rail tracks which have been laid along each bay of the purifier floor. Turn-tables and cross tracks have also been provided at one end of each bay, so that the plant can be transferred from one bay to another.

The feeding truck and the loading conveyor are moved by hand, while the pneumatic plant itself, which is mounted on two trucks, is propelled, *via* suitable gearing and chain drives to the wheels on the rear truck, by an electric motor mounted on this truck. It is therefore a comparatively simple matter to move the plant to any desired position on the extensive purifier floor.

The disintegrator, rotary seal, and the motor for driving this portion of the plant are arranged on one truck; and the blower, the motor for driving it, and the starter are fitted on another. These two trucks are coupled-up, and are connected by a flexible pipe from the blower to the regulating valve below the seal. The disintegrator is of the Barry Henry type, running at 400 r.p.m., and reduces the oxide to a coarse powder. The pneumatic seal serves as a means of introducing the oxide into the air-tight system of the plant, and is of the rotary or paddle-blade type. This seal is so arranged that there can be no leakage of air when the oxide is passing from the disintegrator to the pockets of the seal. A relief pipe is fitted on the top, connecting with the atmosphere.

The rotor has a number of radial vanes dividing it into pockets, which fill in turn as they pass under the inlet port opening at the top. The pockets are released from the pressure of the delivery side on their way between the two openings in the casing by means of an escape pipe, so that there is no tendency to blow back when a charged pocket comes opposite the delivery opening in the casing. The material simply falls by gravity into the regulating valve. A regulating valve is provided below the seal into which the oxide falls after being released, and where it meets the incoming air under pressure. The blower is of the centrifugal type with an arrangement of balancing rings which limit the friction on the inner surface of the machine. The blower runs at 550 r.p.m., and is automatically lubricated by a small pump arranged at the end of the machine. At the outlet end of the blower is fixed an air receiver which carries a relief valve and pressure gauge. The suction end is provided with a filter which is specially coated to prevent dust getting into the interior of the blower. The motor is of the 3-phase type, 35 B.H.P., and is dustproof. The starters are of the usual oil-immersed pattern provided with "no load" and "overload" release. The motor carries a raw-



SIMON OXIDE PLANT.

hide pinion which engages with a machine-cut cast-iron wheel driving the blower.

The portable inclined conveyor is provided with its own motor and starter, and slip clutch on the motor. Flexible leads are provided to bring the current to the plant; and these are connected to plugs arranged at suitable points along the purifier floor. The arrangement of the plant is compact; and the handling and distribution of the oxide is carried out expeditiously and satisfactorily and with a minimum of labour.

The plant was designed, constructed, and erected by Messrs. Henry Simon, Ltd., of Manchester, who have specialized for some years in the pneumatic system of handling granular materials. It was mainly owing to the suggestions made by Mr. E. B. Tomlinson, Engineer of the Nechells Works, that the plant was made portable; and the increased effectiveness thereby secured has proved that his idea was a correct one.

## CHARTERED INSTITUTE OF SECRETARIES.

### Conference at York.

The Chartered Institute of Secretaries, of which Mr. James W. Slack (Managing-Director of Radiation, Ltd.) is the President, held their fourth annual conference on Thursday and Friday, May 14 and 15, at York—the North-East Coast, Sheffield and District, and West Yorkshire Branches taking a prominent part in the proceedings.

The business of the conference, in the Council Chamber of the Guildhall, was opened by an address of welcome which, in the absence of the Lord Mayor, who is in the United States, was delivered by the Sheriff of York (Mr. S. R. Slack). A paper on "The Position of the Secretary in the Industrial Triangle," by Mr. J. B. Bardsley, F.C.I.S. (Vice-Chairman of the Sheffield and District Branch), and Mr. Slater Wills, F.C.I.S. (Member of the Sheffield and District Branch Council), was read by the latter. The discussion upon it was comprehensive and animated. Mr. W. G. Hislop, of London (Member of the Council) and others, in the course of their remarks, dwelt upon the circumstance of the Secretary's potentialities in materially assisting the promotion of an improved understanding between the employer and employed. He had, in the rôle of mediator, many opportunities of exercising, by tact and judicious conduct, an influence for good, the important result of which could not under present industrial conditions be overestimated. The President pointed out that a trusted secretary enjoyed the respect and esteem of his Board, the staff, and the operatives. By reason of his personally disinterested position, he had opportunities of directing policy towards wise decisions, culminating in the happy relationship of all concerned in the welfare of the undertaking. The application of these principles to British industry generally would go a long way towards the restoration of industrial peace—a consummation of vital moment to the country's best interests at the present moment.

In the afternoon the Lady Mayoress, accompanied by the Sheriff of York, gave a civic reception at the Mansion House; and the conference dinner was held at the Station Hotel in the evening. Among the guests were Mr. Albert Procter (the Chairman of the York Gas Company) and Mr. H. E. Bloor, B.Sc., B.Eng. (Engineer, Manager, and Secretary); Alderman J. H. Waddington, J.P. (Mayor of Halifax and Chairman of the Gas Committee); Mr. Walter T. Dunn, M.I.Mech.E. (Secretary of the Institution of Gas Engineers and a Member of Council of the Institute); and Mr. T. P. Ridley (Secretary of the Newcastle-on-Tyne and Gateshead Gas Company). The Secretary of the Institute (Mr. C. H. Carpenter, C.B.E.) was, as usual, looking after the comfort of all, not only at the dinner, but throughout the proceedings of the conference. The toasts at the dinner elicited some excellent speeches. After the Loyal Toasts had been honoured, "The Chartered Institute of Secretaries" was given by the Sheriff of York. His remarks contained very appreciative references to the position of the Institute and the important work which it was so well accomplishing. The President acknowledged the toast, and expressed gratification at the progress being made in every department of the Institute's activities. Col. W. Parker, D.S.O. (Member of Council) proposed the toast of "The Visitors," which was responded to by the Mayor of Halifax in an amusing speech, and by Alderman E. Walker, of York.

On Friday morning the conference was resumed by the discussion on "Reserves and Reserve Funds.

**Continental Union Gas Company, Ltd.**—The Directors announce that an interim dividend of 3½ p.ct., less tax, will be payable on July 4 next on the preference stock, on account of the year ending June 30, 1925.

**Allen's "Commercial Organic Analysis."**—Messrs. J. & A. Churchill have published a new edition of this work, which has been fully revised and in part re-written. The sections on anthracene and naphthalene contain the latest methods of testing the crude and refined products in use commercially at the present time. The price of the volume is 30s. net.

## OBSERVATIONS ON CALORIFIC VALUE AND GAS TESTING.

By B.Th.U.

[Communicated.]

Many recent papers and discussions have shown a widespread feeling that gas should be supplied of constant calorific value, composition, and pressure. It is voiced by men engaged on both the manufacturing and distribution sides of the industry, not merely so as to improve present conditions, but to equip the industry better for the more aggressive attack on the heating field—and particularly the industrial field. Given the *desiderata* named, specific gravity would be constant—that aspect which has only come into prominence in recent years in connection with the correct functioning of appliances.

The whole gamut of uniform calorific value, composition, and pressure is a big order; it can hardly be delivered, at least throughout the country, for many years yet. The industry must go one step at a time. Past history shows that caution has been a predominant characteristic, and to it much of the present prosperity is due.

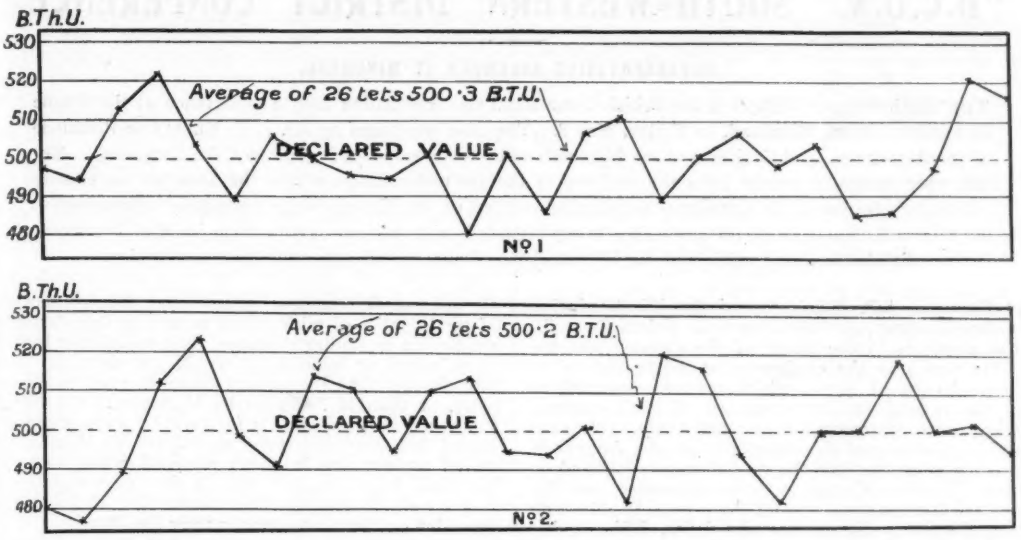
In the report given in the "Journal" for May 6 last of Mr. C. Bryan Donkin's paper "Gas for Industry," and the discussion which followed, Mr. J. Wilkinson, of Nottingham, raised anew the question of uniform calorific value. Mr. Wilkinson apparently doubts the wisdom of the present individual freedom given to undertakings of declaring that quality which best suits local circumstances; for he is reported as saying: "I am not at all sure that the time has not arrived for giving serious consideration to whether a uniform calorific value throughout the whole of the country would not ultimately be in the best interest of the gas industry." If there were no conflict between this ideal and financial considerations, &c. (as to which we need not enter into detail here), it might be readily conceded that the member who interjected "Hear, hear" was justified, not merely in his assent to the suggested consideration, but also to the implied belief that a uniform calorific value would be beneficial.

But is uniform calorific value the first step in the order of progress? If it were already attained, the other physical contingencies referred to would be less difficult of realization; one factor in the compound problem would have been removed. It seems, however, hardly a proposition to be seriously entertained until all gas undertakings have learned to maintain uniform calorific value at the respective declarations which they have already made. In other words, before general uniformity is put up for settlement, it is mete that individual uniformity should be determined.

Since the Gas Regulation Act, 1920, came into operation, about 570 undertakings in England, Wales, and Scotland had applied for and obtained Orders under section 1 up to Dec. 31 last. Out of this number over 80, or about 14 p.ct., had revised their declarations; and in a few cases there had been more than one revision. The cause of revision has probably been either (1) a recognition that the original declaration was not a true reflex of existing working, or (2) modifications in plant resulting in a different calorific value being the most convenient to manufacture. Whatever the cause, the convenient flexibility of sub-section 4 (*b*) of the 1920 Act, which gives power of alteration, has received substantial support in so large a percentage of amendments.

Under the Regulation Act, provision is made for independent testing of the gas; and gas examiners have been appointed to discharge these duties in the great majority of areas now supplied under section 1. The prescriptions drawn up by the Gas Referees provide that the gas examiner shall issue a quarterly report of all the official testings made, and "no average calorific value shall be reported for any less period than a quarter." Thus the figures which are published afford no indication of the fluctuations which may have taken place during the quarter. It is seen from the reports appearing in the Technical Press that many undertakings have come very close indeed to the declared value in the quarterly averages. A superficial observer might assume from this that individual undertakings, though not obliged to supply at a "national" calorific value, were able to supply, and were actually supplying, uniformly at the "local" value. But in actual practice this is far from the case, especially where daily official tests are not made. A 6 p.ct. deficiency is allowed before penalty arises for not supplying according to declaration; and so long as an undertaking keeps above that minimum, there will be no publicity of deficient tests. The item "Number of days on which the calorific value was deficient by 6 p.ct. or more," on the quarterly report sheet, will be followed by a "0."

Assume an undertaking gets down to 471 and, *per contra*, for equalization purposes, goes as high as 529 on a declared value of 500 B.Th.U., there is a variation (calculated on the declared value) of nearly 12 p.ct. The writer makes no point of whether or not such a variation is desirable. As it is one allowed by the prescriptions, it may be assumed that, so long as it is no more than 12 p.ct., the interests of the public are held to be fairly safeguarded. Here follow the actual official tests of an undertaking made over two consecutive periods, put in graphic form:




It will be seen that in No. 1 the variation is from 522 to 480 B.Th.U., and in No. 2 from 524 to 476 B.Th.U. Moreover, there is much jumping up and down, both graphs having many peaks and depressions. The graphs refer to an undertaking which would be classed as "medium to large," and one that is under excellent management. It is safe to assume that, were we permitted to enter the archives of the Gas Referees and look at the quarterly reports of other undertakings, we should find that there were many of which these graphs are typical.

### Implications of Considering General Uniformity.

Now, if the question of the desirability or not of imposing on the gas industry, voluntarily or otherwise, a uniform standard of calorific value throughout the country is to be discussed, it follows as a natural sequence that the first thing a gas engineer or manager must do is to look at his own performances in the direction of uniformity. It follows, too, that what the gas industry has achieved in its effort to comply with official control will come-up for examination. The future can only be prescribed for by regard to what has been accomplished and shown to be practicable in the past.

It is worthy of consideration as to whether gas undertakings are prepared or willing to have more publicity in connection with official tests—*i.e.*, publicity in greater detail. It is not difficult to see that, should a fairly general feeling be declared in favour of uniformity of calorific value throughout the country, one of the things that would precede its attainment would be more public information as to the quality that is already being supplied. This publicity would focus more and more the eyes of the consumers on the gas undertaking. It is conceivable that what is now a tolerable statutory injunction would become nothing more or less than a whip in the hands of pertinaceous consumers with which to belabour the gas undertaking.

If general uniformity were agreed upon, would the uniformity be based on a standard with a 6 p.ct. margin either way? The rejoinder at once is that this is no guarantee of uniformity. Mr. Wilkinson spoke of the margins of 280 to 560 B.Th.U. These figures in their nakedness are very far from fairly reflecting the real position. They give the impression that quality ranges to-day by 100 p.ct. upon the lowest figure. As a matter of fact, there are only four undertakings which have a lower declaration than 400 B.Th.U. These are as follows (annual sale in million c.ft. in brackets): Bungay, 360 (7); Goring, 320 (18); Nuneaton, 280 (119); and Scunthorpe, 375 (112). In considering the general proposition, these undertakings are negligible, totalling no more than 876,000 therms altogether. There are only 56 undertakings, including these four, with a lower declaration than 450 B.Th.U., and 13 of these are in Scotland.

There are 24 undertakings with a declared value of over 500, but not exceeding 560 B.Th.U.; and one, Lampeter, which has declared 600 B.Th.U., and sells less than four millions. Thus, of the 570 undertakings with declarations at Dec. 31, 1924, nearly 500 already declare at between 450 and 500 B.Th.U., and of these actually 169 have declared at 500 B.Th.U. It is an exercise for which the writer has not the inclination, but which might tempt a statistically-minded reader, to calculate from the individual declarations what proportion of gas this 500 B.Th.U. declaration represents on the total. As it includes the Gas Light and Coke Company, it must be in the neighbourhood of 50 p.ct.

When the figures are fully examined, it is probable that they will reveal a much closer approximation to uniformity than superficial consideration leads one to think. If a range of 60 B.Th.U. were taken (say 440 to 500 B.Th.U.) it would probably be found that 70 to 80 p.ct. of the gas sold under section 1 is already within it.

Does the question, then, not boil-down to this—that if undertakings will successfully strive to keep the quality at the declared figure, uniformity to a greatly preponderating extent will have been accomplished, without any tinkering with the present legislation, or provocation for tinkering? If Mr. Wilkinson had in mind no more than a "consideration" having for its object the peaceful persuasion of gas suppliers to deliver at a uniform quality, that "movement" can achieve a great deal, if it produces close synchronization between the supply line of quality and the line of declared value. Even before that can be urged to the full, there is another "movement" overdue—that of those municipal undertakings which have so far elected to remain outside the fold of the Gas Regulation Act, getting inside. On a point of urgency, this takes distinct priority over the question of a uniform calorific value. Until these undertakings come in, and declare what quality they can most conveniently supply, it is not possible with completeness to test the measure of present dis-uniformity.

### Qualifications of Gas Examiners.

No steps have been taken as yet to enforce a standard of qualification in persons who are appointed to gas examinerships. The attainments of those who are appointed vary widely, as also the remuneration for the duties performed. Those who make appointments are guided merely by an exhortation to appoint only qualified men, without any indication as to what qualifications to look for. There are examiners with so many appointments that it is a wonder how they are able to do justice to all of them. It is a matter for consideration whether some closer regularization cannot be given to persons who are entrusted with so important a matter as reporting on the quality of the gas supplied under statute. The Metropolis is reputably well served. It is in the Provinces that wide disparity exists.

In conclusion, the summarized position seems to be that, if the gas industry can be assured that throughout the country the gas is being efficiently tested with reliability, reflecting the true quality, and can keep at all times closely to its declared value, the case (if there is one) for general uniformity, or one common quality, will, in the writer's view, be found to be considerably weakened.

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**Distribution Conference in America.**—In connection with the American Gas Association, there has been arranged a two-day distribution conference, which will take place in Detroit on June 11 and 12. The purpose is to afford distribution engineers an opportunity of discussing vital problems; and various pressing topics have been selected for consideration.

**The Industrial Gas Field.**—The Survey Committee of the American Gas Association have been considering the data which will be embodied in their report to be presented at the convention in October. In connection with their work, the Committee are preparing data on all of the gas properties in the States of New Jersey and New York, showing the gas sales for the year 1924, divided into domestic and industrial sales, and the percentage of sales and revenue in each class to the total business. These data will be summarized in the classes of business, indicating the amount of potential business available in 1000 c.ft. of gas, and the rate necessary to secure the business. The idea is to show that, if gas utilities were securing this business and displacing other fuels, the industrial gas sales, instead of being from 20 to 25 p.ct. of the total gas sold, would amount to from 40 to 60 p.ct.

# "B.C.G.A." SOUTH-WESTERN DISTRICT CONFERENCE.

## REPRESENTATIVE ASSEMBLY AT MINEHEAD.

THE South-Western District of the British Commercial Gas Association held a conference at the Plume of Feathers Hotel, Minehead, on Friday, May 8. The chair was taken by Mr. J. H. ELLIS (the President of the Association, and Chairman of the Plymouth and Stonehouse Gas Light and Coke Company). Not only were delegates present from the majority of the gas undertakings within the area, but an equally satisfactory feature of the attendance was that all sections of the industry were adequately represented—the size and character of the gathering being regarded with extreme satisfaction by the Directors, shareholders, and officials of the Minehead Gas Company, who were the hosts for the day.

Mr. JOHN BURGESS, J.P. (Chairman of the Minehead Gas Light and Coke Company, and the Minehead Urban Council), welcomed the members in the name of the Council and the Company. He was sure the conference would be helpful to them in the exchange of ideas, which was so essential to efficiency in the control and management of gas concerns. Minehead was a most prosperous town; and taking into consideration the population and the rateable value, he thought it had made greater progress since the war than any other place in the country. The Gas Company were progressive, and the output of gas had increased every year for a considerable time—even during the war. He congratulated Mr. Ellis on his election to the Presidency of the "B.C.G.A.," and said those who had had the pleasure of listening to him in different parts of the country must feel that he was the right man in the right place. He was expressing this appreciation on behalf of the Directors of the Minehead Company, but he might go further, and say it was an opinion fully shared by everyone in the Association. [Applause.]

### PRESIDENT'S ADDRESS.

The PRESIDENT said he took what had been said of him to belong more properly to the organization of which he had the honour to be the head. The policy of the "B.C.G.A." was to encourage those conferences for the interchange of views and experiences, for the benefit of the industry. The one purpose which animated them all was to serve the public honestly and well, and to give those on whose support they depended the best value for their money—not merely in the cheapness of the commodities they supplied, but in the brightness and comfort of their homes, in the removal of domestic drudgery, and in the purity of the atmosphere of the towns which the extended and extending use of gas brought.

Perhaps he might call attention to the results of this policy, as revealed by the following figures:

*Output of Gas in the British Isles.*

| | |
|---|---|
| Last year | 281,874,000,000 c.ft. |
| The year before | 269,602,000,000 ,, |
| Increase | 12,272,000,000 ,, |

*Number of Consumers.*

| | |
|---|---|
| Last year | 8,502,069 |
| The year before | 8,406,172 |
| Increase | 95,897 |

*Cookers and Grillers Supplied.*

| | |
|---|---|
| Last year | 5,450,093 |
| The year before | 5,133,190 |
| Increase | 316,903 |

The outlook of the Association was world-wide; and while there were many respects in which the Americans might with advantage follow us, there were others in which we seemed to be travelling along the same road, and some where we might profitably follow them. High-minded competent administrations on both sides of the Atlantic were agreed it was their duty, as well as their interest, to minister to the public well-being. In pursuit of this object, they must be candid and frank with their customers (the public); and they must never tire of giving the wildest circulation in the Press, on the platform, in exhibition halls, and in their offices, to the benefits which followed the happily increasing use of gas in streets, factories, and homes. Let them be careful to tell the truth not merely about themselves, but also about their competitors. For years he had been associated with both gas works and electricity works, and the successful conduct of each was mutually advantageous. Not only so, but extended experience convinced him that if both were more often in the same hands, as they were in some places, they would be administered more to the public advantage than was frequently the case.

Dealing with the suggestion repeatedly made that the Government should subsidize electricity, the President asked, "Was electricity in such a bad way as that?" Figures were given showing dividends from 10 to 15 p.ct. on electrical undertakings. How many gas undertakings were allowed to pay such dividends as those, and what sliding-scale that was ever thought of would permit them? Members of Parliament with whom he had talked on that subject said it was only intended to subsidize water-power schemes, such as the Severn. Did they suppose, if the present Government or any other Government were guilty of the injustice of taking their money or speculating with it on the Severn or similar ventures, they would ever have a farthing of principal or interest, or would get electricity a farthing a unit cheaper than they would obtain it from the electricity company, or than Mr. Vince (the Manager of the Minehead Gas Company) could produce it for them by a gas engine? He suggested that everyone present should ask his Member to be on his guard against any insidious proposal made, and to resist it. Let them depend upon it that, if they were vigilant, the public would see to it that injustice was not done to the thousands who depended on their industry for their livelihood.

At the invitation of Mr. W. N. WESTLAKE (Exeter) seconded by Mr. S. J. INGRAM (Truro), the conference accorded thanks to the President for his address.

### PUBLICITY WORK OF THE ASSOCIATION.

Mr. W. M. MASON (the Manager of the "B.C.G.A.") then dealt with the publicity operations of the Association—specially commending the Wembley Exhibition last year as an example of what could be done in the way of advertising. The Association was out to benefit the gas undertakings, and nothing gave those officially connected with it greater pleasure than to be of use. Undertakings had a perfect right to look to the organization to assist them in overcoming difficulties, and to be a help to them in every form of development. He was hopeful regarding the future, both of the Association and of the industry it was seeking to promote, believing that, by all working together, still greater success awaited them. It was by constant and well-directed efforts of the individual units, backed by the whole strength of the central organization, that future triumph could be assured. Never let those present forget that the Association under whose auspices they met that day was their organization, and that its main object and chief purpose was to help in the development, and secure the improvement, of the whole gas industry of the country. He had a strong belief in the value of publicity, and a confident opinion that, if wisely used, it would serve to show, in ever more striking and convincing way, the value of gas to the community in its upward march along the path of progress and civilization. The future was with them, as promoters of this great agency for giving light and heat, if only they seized their chances courageously and went forward without fear.

Mr. EDWIN P. VINCE (Manager and Secretary of the Minehead Gas Light and Coke Co., Ltd.) read a paper, from which the following extracts are made:

## LOCAL PUBLICITY AND SERVICE METHODS OF A 50-MILLION WORKS.

It has been said that it is impossible for two lighting companies to exist and pay their way in a town of under 6000 people; but this has not been our experience or that of our competitors. In 1897 we made 8 million c.ft., in 1915 23 millions, and in 1924 over 48 millions. I should like to emphasize the fact that our policy is *pro* gas, not *anti* electricity. Indeed, if there were no electricity available in Minehead, I should not hesitate to recommend my Directors to get power to supply it.

An outline of the method by which we have increased our sales may be of interest to you. First I would like to pay tribute to the excellent organization and officers of the British Commercial Gas Association, the mainspring of the selling side of every up-to-date gas undertaking. I look forward to the day when there will be a 100 p.ct. membership. Those companies who are outside our organization are benefiting by the co-operative advertising; but happily the proportion is fairly low. In most cases they are probably undertakings with a very low standard of efficiency. If they were really keen, they would be members of the "B.C.G.A." as a matter of course. Every undertaking has a duty to the industry as well as to itself—viz., to give a high standard of service.

The greatest asset in developing the sales organization of any industry is the goodwill of the public; and this can only be obtained by persistent, conscientious, and faithful work—viz., service coupled with boundless enthusiasm. We must all realize that, in spite of the general growth of gas sales throughout the British Isles, we have only touched the fringe of the possibilities of gaseous heating and other uses for gas. While there is a single chimney emitting smoke, we must never rest.

Good advertising is a great asset to any business concern, provided it is backed-up by service; the one is of little benefit without the other. Spasmodic advertising, however, is of very little value, if any. We advertise in our local Press every week; and the subject matter never appears more than once. We realize to the full that it is one of the greatest essentials to effective newspaper advertising that copy should be regularly changed. Furthermore, to be of any value, the advertisement must catch the eye. To achieve this end, we always have an illustration. The reading matter, which must never be overcrowded, is headed by an apt phrase in bold type, and the whole is surrounded by a distinctive border. Also we stipulate for a position over news columns, with no other advertisements near by. "White space" advertising, too, we consider to be an effective, if somewhat expensive, method for occasional use, while a paragraph every now and again in the local news undoubtedly has its uses. We always endeavour to frame an advertisement to educate the public up to the utility of the particular apparatus referred to; and in this connection I should like to pay tribute to the assistance we have received from the "B.C.G.A," and also to one of the members of our clerical staff, who has shown particular aptitude for the work. Good advertising is like the proverbial snowball—at first it gathers slowly, but later on the result is apparent.

I should like to emphasize the need for every gas company, however small, to possess a showroom. For several years I served companies without showrooms; and I can speak from personal experience of the difficulty in securing new business when one can only show to the prospective customer an illustration of the particular appliance required. Happily for me, my Directors, at the instigation of the late Mr. Reginald Thomas, my predecessor here as Manager and Secretary, secured good premises as showrooms and offices in the centre of the town; and other property has since been acquired for future extensions to meet our growing business. I say without hesitation that, without these showrooms and offices, it would have been impossible to increase our sales as we have done.

Our aim has been to show how gas can be employed to increase the amenities of the home or the potentialities of a business. Having regard to the fact that this is a holiday resort, I hope, when our additional premises are available, to fit-up a section showing the many advantages of gas in hotels and boarding houses. There is a real need for this, as one often finds obsolete and extravagant apparatus in use. A well-lighted showroom window display is at all times a potential business getter, and additionally so if lighted after the usual business hours.

As regards canvassing for new business, it is questionable whether postal canvassing is of much use in a small town. I think one interview is worth a dozen letters, and certainly is far more satisfactory in the long run. Neither am I impressed with my one experience of employing a canvasser. The best business getters are a staff who know their work and do it efficiently. I am glad to say my staff introduce a lot of business, because they are keen on their job. The question of regular inspection of all gas appliances, and testing of installations, in order that the highest efficiency may be assured, has given many engineers cause for thought, and in some cases action. I am convinced that customers and gas companies alike would benefit by its general adoption. We have not been able to do this yet, but I hope to see it put into effect.

The enhanced cost of gas appliances since the war makes it imperative for companies who are not in the position to resume general hire terms to adopt a system which helps an intending purchaser to have the best and most efficient appliances. Many of our clients appreciate, and take advantage of, the facilities we afford them to spread payments over two or three years at a very small extra cost—viz., 5 p.ct. for two years or 7½ p.ct. for three years. As we offer to deduct this percentage from the amount remaining unpaid, if at any time a client is in a position to clear the account, it happens in a large number of cases that, after a successful letting season, the balance is paid off. About 500 houses have been erected in Minehead and district since the Armistice; and the whole of these, with two exceptions, were serviced and piped for gas during the course of erection. The pipes are so arranged that it is possible to have a gas fire fixed in any of the rooms. It is obviously good business to do this.

One of the best advertisements any company can have is good outside lighting of shops. Under our scheme we make a fixed charge per lamp for hire and maintenance. This system is good for the trader and for the company. Each year since we inaugurated the system we have had the pleasure of gaining more business. The effect on the minds of the public through always having good examples of gas lighting before them should not be lost sight of. We have also a fair share of inside shop lighting, which we do on similar terms. The number of outside lamps is 70, and inside lamps 106. In the aggregate they afford us an appreciable load.

The domestic servant problem is becoming more difficult every year, and is probably felt to a greater extent in a seaside town than inland, especially during the summer season. A Minehead lady informed me the other day that the board and wages of a good servant in Minehead to-day are equivalent to £100 per annum, so that, if she could reduce her staff of servants by one, through the adoption of gas for heating and cooking, it would be a profitable transaction for her.

Many of the hotels and boarding-houses here have adopted gas fires with separate slot meters in the bedrooms; and without doubt, as the idea becomes more generally known, this business will increase enormously. In this connection a letter we received from Bournemouth will interest you.

"Boscombe, Bournemouth,
Dear Sirs, *Jan.* 28, 1924.

Will you be so good as to let me know which of the private hotels or board residences in Minehead have gas fires with ring fixed in the bedrooms? I am anxious to visit Minehead early in the spring, and should be glad to know this. I see in one of the guide books that you will be glad to supply this information. We have gas fires in all the bedrooms here, and they are such a convenience to all in the house.—Yours faithfully, &c."

The good use of this letter as the basis of an advertising campaign secured us a welcome increase in this class of business, while many cases of new installations in the same direction have resulted through the personal recommendation of one boarding-house keeper to another.

Much may be done also in the way of educational propaganda. For instance, we are always glad to co-operate in any local cookery classes or competition for adults or children, by offering prizes for cooking by gas. The money is well spent, especially where the children are concerned, for they are our customers of to-morrow.

In conclusion, I should like to point out that a scheme of publicity which might be applicable to one district might not be so well suited for another. Each district must work out its own salvation. Whatever form of publicity is adopted, it is often difficult to trace the business actually resulting; but in the writer's opinion good advertising, backed-up by good service methods, is the *sine qua non* of successful management.

**Discussion.**

Mr. P. S. HOYTE (Plymouth) enlarged on the value of showrooms, and adduced several arguments to support his view. Without decrying the value of the written or the spoken word, he insisted that practical demonstrations made the greatest impression on the public mind. In showrooms persons could see what no amount of printed or spoken matter could convey. He urged the establishment and maintenance of showrooms, replete with the most modern devices and improvements in heating and lighting by gas. It was the best advertisement any company could invest money in. Such showrooms should be rendered attractive, be made easy of access, and be in charge of an employee who was affable and well posted on all points. Advertise, by all means, in every way possible, by circulars, in the Press, upon the hoardings. Use pictorial matter whenever practicable. But do not suppose that, when that is done, everything is done. In other words, do not forget the showroom.

Other members taking part in the discussion testified to the use and value of showrooms, and several spoke in appreciation of Mr. Vince's paper.

LUNCHEON.

Later the members were the guests of the Directors of the Minehead Gas Company at luncheon. Mr. JOHN BURGESS presided, and was supported by co-Directors and by officers of the "B.C.G.A." At the conclusion, there was one toast—the President inviting the company to drink to "The Chairman, Directors, and Manager of the Minehead Gas Company." He expressed his warm appreciation, and that of the members, of the way in which the Association had been received and entertained that day. Mr. Burgess briefly replied.

THE MODERN LABOUR-SAVING HOUSE.

The afternoon session (open) drew a crowded attendance; the accommodation of the Assembly Room at Newcombe's Café, in the Parade, being severely tested. Ladies greatly predominated in the audience. Home hygiene and its relation to gas, to be expounded by a lady, was evidently a powerful attraction to housewives.

The PRESIDENT, in a few introductory remarks, said Mrs. Robert Noble was known to them as consultant on home hygiene, furnishing, and equipment. The topic upon which she was to speak to them, which she would treat as an authority, was "The Modern Labour-Saving House."

Mrs. NOBLE said she understood that 90 p.ct. of the population of Minehead used gas appliances, but that still a number of houses detracted from the health-giving attributes of the town by burning coal and adding smoke to the atmosphere. As a delightful resort, Minehead must live up to its reputation for fresh air and sunshine, by offering a maximum of both; and this could only be done by eliminating all the coal fires that vitiated the atmosphere. It seemed a pity that the whole community should be penalized by the few. There were homes so efficiently run and intelligently equipped with gas cookers and gas fires for heating the rooms that, although there was abundant warmth in them, there was no vitiation of the atmosphere by smoke and the products of incomplete combustion. The owners of such houses found the labour of housework so lightened that they had more time for rest, recreation, and leisure. But what happened time and again was that the leisure so won was spoilt. The skies were heavy and overcast, fog and smoke lurked in the atmosphere, and the leisure hours spent out of doors were robbed of part of their health-giving

properties by the smoke and soot rising from the open coal fires of the unenlightened householder. All true housewives should strive to make their own house ideal; and both husband and wife must join forces to bring about these ideal conditions.

The real labour-saving house saved time, steps, and money, and conserved health and energy. The work was better done and in less time, leaving a wider margin for rest and recreation. Thus in a community of real labour-saving homes the citizens enjoyed more ideal atmospheric conditions during their leisure; and they also had a good conscience, knowing that each had honestly done his or her bit to ensure a smokeless city. The intelligent servant welcomed the real labour-saving device that simplified housework. Gas appliances really did save time and trouble by lightening work, by providing adequate hot water, and by supplying a hygienic source of warmth, with a maximum of efficiency at a minimum of cost in both cash and energy.

Many mistresses who could provide their staff with a sitting room found the gas fire exactly met the case. The room was needed at odd times, and it was so easy to light the gas fire for just so long as it was wanted and no longer. In the kitchen, which was the workshop of the home, when gas was intelligently used, the preparation of the meals and the clearing-up after them, the work of washing day and all house cleaning, were considerably simplified. In connection with hot water the coke boiler must also be considered. In every room of the house the story was revealed of how gas helped the housewife to make a real home. From attic to cellar the value of gas appliances and gas fires in promoting the health, comfort, and well-being of the whole household could not be over-estimated.

The President said they were extremely obliged to Mrs. Noble for her address.

Some ladies put questions. One of them asked whether a gas fire in a room helped to promote sociability to the extent that everybody knew an open fire did.

Mr. Vince replied that personally he felt as much sociability under the influence of a gas fire as before an open grate.

Mr. Mason urged the value of labour-saving appliances in the home, as advocated by Mrs. Noble. Their industry happened to coincide with the public welfare. They were offering the public something that was needed, and would help tremendously to solve the problems of the household. In Minehead they were fortunate in having a progressive gas company. Let them go to the showrooms, and they would be surprised at the wonderful service they could get.

The President said, with regard to cooking, everybody was agreed that it was now nearly all done by gas. In Leicester 95 p.ct. of the population cooked by gas; and in Plymouth they had a trifle of 14,000 cookers out. The Gas Company were discontented, however, because 2000 or 3000 of their customers did not cook by gas; and they were giving demonstrations showing how advantageous it was to cook by gas.

Mr. Westlake said that Exeter was extending its houses rather rapidly, and during the last four or five years 95 p.ct. of the new houses had been built without coal ranges being installed. Cooking by gas was looked upon almost as a universal necessity. In Exeter a group of 45 houses had just been completed, and there were no coal ranges in any of them. They had done away with chimneys in the upper storeys altogether, and had put in 9 in. by 3 in. flues, and gas fires in two bedrooms. These had proved so acceptable that they were now being pressed to instal them in the smaller industrial houses.

Mrs. Noble was thanked for her address, on the proposition of the President, seconded by Mr. Burgess.

## Gasholder Fire at Pittsfield (Mass).

Illustrations appeared in a recent issue of the "Intercolonial Gas Journal of Canada" of a gasholder fire at Pittsfield (Mass.). When workmen were on the steel framework of the holder attending to the steam pipes for heating the sealing-water, a film of oil floating on the lower water-seal, from some cause unknown, became ignited. The film of oil was probably very thin, and the flames at first reached a height of only 2 or 3 ft. The burning surface, which was 18 in. wide, extended round the whole circumference of the holder—about 330 ft. This oil fire would doubtless have burned itself out in a very short time, without causing appreciable damage, had it not been for the introduction of complications. The holder was a three-lift one, in a steel tank, and had a capacity of 750,000 c.ft. At the time of the occurrence it was almost full of gas, which was expanded by the heat from the burning oil to such an extent that the holder rose to its utmost height, and the gas then blew out around the bottom water-seal. This escaping gas, of course, became ignited, and further increased the heat, with consequent additional expansion and escape of gas, which provided fresh fuel for the flames. About 200,000 c.ft. of gas was consumed in this way; and at the same time, it is said, the oils which had over a long period condensed out of the gas, and were floating on the surface of the water inside the holder, were forced out, and also caught fire. Any danger there might have been of a collapse of the structure was obviated by keeping the steelwork cool by means of streams of water from the fire hoses constantly playing on the supporting frame.

## GAS PRODUCED FROM HEAVY OILS.

The possibility of competition with town gas from gas generated from heavy fuel oils by partial combustion, was mooted in the course of a paper read at the meeting of the London Section of the Society of Chemical Industry on Monday, May 4. The author was Mr. J. E. Hackford, who has been responsible for the technical development of the "Hackol" gas process, in which heavy bunker oils of 0·950 sp. gr. and upwards are contemplated for use. The author pointed out that these oils are not universally satisfactory for use in high-compression engines, and consequently it is not surprising to find that efforts have been made to convert such residual oils into producer gas. Another reason which has influenced this work is the present industrial unrest as reflected in the high prices of coal and freight, which it is alleged has brought about the position that a producer gas made from oil can, under certain conditions, compete in price with producer gas from coal, and can much more successfully compete in price with town gas. As a matter of fact, the author himself, in the paper, did not stress this latter point; and it was left to various speakers in the discussion, who spoke highly of the "Hackol" process, to emphasize it. Under the influence of this favourable criticism, however, Mr. Hackford dealt with it a little more in detail in the course of the reply to the discussion.

Having experimented with furnaces of various types, which have formed the subject of early patent applications, in order to ascertain why these were not so completely successful as might be desired, Mr. Hackford has evolved a generator which relies upon the heat of partial combustion to provide sufficient heat to carry on the cracking process indefinitely. This generator obviates the use of baffles and external heating devices which are more or less common in other types of apparatus designed to develop gas from heavy oils. In this way it has been found that the composition of the gas is maintained constant, as also is the temperature, while the drawback of previous apparatus due to the deposition of coke or asphaltum is also avoided. Gases from 155 to 190 B.Th.U. per c.ft. are generated in this apparatus; and an important feature is that the plant is capable of adjusting itself to the load without material reduction in efficiency, which, according to the type of oil used, has been found to vary between 80 and 93 p.ct.

In the course of the discussion,

Mr. G. W. Anderson said that, while admiring the ingenuity of the work done by the author, it would be interesting to know why so many people who might be expected to use producer gas preferred town gas. Moreover, it was difficult to see why such a round-about process as the author's should be adopted when fuel oil in itself was such an excellent means of obtaining power by direct burning in boilers, engines, or furnaces. Another point which should not be overlooked was the national aspect of purchasing foreign oils for this purpose, when they had at hand in this country so many fuels available for power purposes.

Mr. W. Hesketh said that one of the drawbacks of the ordinary producer gas plant was the large amount of space which it occupied; and he looked to the author's process to overcome this difficulty, because an apparatus measuring about 12 in. in diameter by 18 in. long was capable of an hourly production of 5000 c.ft. of gas of a calorific value of 150 B.Th.U. An ordinary producer plant using solid fuel would occupy, for this output, a space of 20 ft. long by 15 ft. wide.

Mr. Koopman, who has been associated with the author more on the commercial side, said that it was possible to produce gas by this process and to sell it at from 2½d. to 3¼d. per therm, against 6d. to 1s. per therm for ordinary town gas.

Mr. W. J. A. Butterfield suggested that it would be interesting to have some comparative figures of outputs and sizes of plant using the author's process and ordinary producer gas plant.

Mr. Hackford, replying to the discussion, said it was possible to sell this gas at one-third the price of town gas, and at 66 p.ct. lower than producer gas, with coal at 24s. per ton. A plant to generate 50,000 c.ft. of gas per hour occupied a space 36 in. long by 18 in. internal diameter, while the subsidiary apparatus would take a space of about 4 ft. square. As the reason why many people who wished to use producer gas to-day, but who used town gas, was that they had not the space to instal the ordinary producer gas plant, he looked to his process to appeal to these people. Commercial plants were now being constructed; and he hoped to have the opportunity of putting forward results from them in due course.

**"The Cost of Freight Transport by Railway."**—The object of this book, which has been written by Mr. F. W. Rogerson, is to examine the elements of railway operating expenses, and to describe methods of procedure in the development of a cost accounting system, particularly in respect to the determination and application of overhead charges. In view of the activities of the Railway Rates Tribunal, the necessity for correct records of railway operations will be felt in the future to a greater degree than in the past; and reliable data, easily and correctly compiled, will be found of immense service to officials and others. The book is published at No. 27, Pembroke Place, Liverpool; price 4s. 4d. post free.

# LONDON AND SOUTHERN DISTRICT JUNIOR GAS ASSOCIATION.

## Annual General Meeting.

The Annual General Business Meeting of the Association was held at the Westminster Technical Institute, S.W., on Friday, May 8—Mr. NEWTON BOOTH (the President) in the chair.

### FINANCIAL STATEMENT.

The HON. TREASURER (Mr. A. Broadbent) submitted the financial statement, remarking on the healthy condition of the Association. They would be able to start the new session with a credit balance greater by £10 than at the beginning of the present year. They had every reason to be satisfied with this state of affairs.

The PRESIDENT proposed the adoption of the balance-sheet. The motion was passed unanimously, after being seconded by Mr. J. K. GRANT, of the South Suburban Gas Company.

### REPORT OF THE PRESIDENT.

The PRESIDENT then reported as follows on the working of the Association during the past year:

The Council are pleased again to be able to report a most successful session. You have heard from the Treasurer's statement that there is a small addition to the credit balance carried forward, and that the Association is in a sound financial position. As regards membership, the total number of members at the date of the last annual general meeting was 295; and we have admitted during the year 22 members. Unfortunately, however, we have had a rather large loss of membership by resignation, &c.; the total number being 21, leaving us with a present subscribing membership of 296.

With regard to the programme for the session, we have again been fortunate in securing high-class lectures and papers for our meetings, and in having the opportunity of visiting a number of works. On the two short paper evenings, we arranged for two papers only, as it was found that there was difficulty in compressing three papers into one evening. The result justified the decision; and the evenings were very successful, especially when one remembers that the authors of the papers were members who had not previously contributed in this direction to our transactions. The pictorial lecture on the building of the Lea Bridge gasholder, given by Mr. D. Cleave Cross, was a very enjoyable and most instructive event, as were also the lectures given by Dr. Hartley, Mr. Randall, and Mr. Dean Chandler. Our thanks are due to all these gentlemen who contributed to the proceedings in this way.

The Association have also been welcomed again at the Tottenham and the Beckton Gas-Works, at the Kingsland Road Meter Works, and at two works where gas is not the chief interest—the East Greenwich Generating Station and the Royal Arsenal. The Council feel that it is in the best interests of the Association occasionally to visit such works.

The Council have with regret to inform the members of the resignation of the Hon. Secretary, Mr. Leonard Lacey, and the Assistant Hon. Secretary, Mr. W. H. Noble. Mr. Lacey has filled the office for two years with credit to himself and distinction to the Association, and is relinquishing the position on account of his more onerous duties in other directions. The Council deeply appreciate his sterling worth and the services he has rendered to them and the Association. Mr. Noble is about to seek fresh fields in another hemisphere. His services are deeply appreciated; and we thank him heartily for them. At the same time our best wishes will go with him when he leaves us. Mr. J. H. Goldsmith has kindly consented to take up the duties of Hon. Secretary; and the Council trust he will receive the whole-hearted support of all the members. It is expected to find a successor to Mr. Noble in Mr. A. Tennant, of the Croydon Company.

So far we have been dealing with purely domestic matters; but we have other interests. This year we had the honour of holding the Joint Council Meeting of the Junior Gas Associations in London, at which your President took the chair. The principal subject discussed was the Education Scheme; and the meeting had the advantage of the presence of Mr. Walter Hole. The Junior Council expressed strongly the view that something more was needed than the group courses which had been put forward as the commencement of a course of studies leading up to the Institution Diploma, and that it was necessary to deal with those men who, while requiring instruction in one or two subjects, yet, by reason of age or capacity, lack the ability to profit by comprehensive group courses. The point made has had its due effect. Our liaison with the Southern Association of Gas Engineers and Managers has been maintained.

We have still another meeting this session—our summer visit to Cambridge on June 20. The Council trust that there will be a good attendance of members and their ladies.

And now, if I may be permitted a little personal note, I would like to say what an advantage it would be to members and to the Association if larger numbers attended our meetings and took part in the discussions. Not only does knowledge grow by being disseminated, but the advantage to members themselves—especially the younger ones—of the personal touch, and the practice they get of clothing their ideas in spoken words, is very great.

In conclusion I would like to thank the officers and Council of the Association, and especially the Hon. Secretary, for the splendid way in which they have helped me during the year, and all members for their support.

Mr. W. R. MOGER (Tottenham District Light, Heat, and Power Company) proposed, and Mr. W. E. BROWN (Gas Light and Coke Company) seconded, the adoption of the report.

A hearty vote of thanks was passed to the retiring officers and Council for the work done by them during the past year.

### TESTIMONIALS.

Mr. J. R. GALE (North Middlesex Gas Company) proposed that the following testimonials be presented.

#### MR. W. NEWTON BOOTH.

This testimonial, presented to Mr. W. Newton Booth, Assoc.M.Inst.C.E., by the Council and Members of the London and Southern District Junior Gas Association, places on record their high appreciation of the services rendered by him during his term of office as President for the session 1924-25.

His wide technical experience, together with his unfailing tact and courtesy, have increased the prestige of the Association.

In expressing their thanks, members trust that he will for many years to come enjoy good health, and continue to render valuable service to the industry.

#### MR. A. BROADBENT.

This testimonial, presented to Mr. A. Broadbent, on the occasion of his vacating the position of Hon. Treasurer to fill the office of Senior Vice-President, is intended to convey to him the thanks of the officers and members of the London and Southern District Junior Gas Association for his long and devoted service in the former position during the years 1920-25.

They feel confident he will, in the positions he will hold during the next two sessions, continue to merit their appreciation and esteem.

#### MR. LEONARD LACEY.

This testimonial is presented by the Council and members of the London and Southern District Junior Gas Association to Mr. Leonard Lacey, Assoc.M.Inst.C.E., on the occasion of his retiring from the position of Hon. Secretary.

It is their desire thus to record their earnest appreciation of the sterling services rendered while occupying this most important office for the last two years.

His efforts have done much to enhance the reputation of the Association; and it is the wish of all that he may continue to find advancement in the industry and enjoy a full measure of good health.

#### MR. W. H. NOBLE.

This testimonial is presented to Mr. W. H. Noble, who for the two sessions from 1923-25 has rendered unobtrusive but useful service to the Association as its first Assistant Hon. Secretary.

In making this presentation, the Council and members of the London and Southern District Junior Gas Association extend to him their sincere thanks, and best wishes for his success in the future.

Mr. W. H. COSH (South Metropolitan Gas Company) seconded, saying that their voluntary duties were deserving of the highest praise.

Mr. NEWTON BOOTH, on behalf of the officers of the Association, thanked the members.

### NEW OFFICERS.

The election of the following office-bearers for the next session was announced:

*President.*—Mr. W. L. Westbrook, North Middlesex Gas Company.

*Senior Vice-President.*—Mr. A. Broadbent, Gas Light and Coke Company.

*Junior Vice-President.*—Mr. Leonard Lacey, Gas Light and Coke Company.

*Hon. Treasurer.*—Mr. H. G. F. Soar, Gas Light and Coke Company.

*Hon. Secretary.*—Mr. J. H. Goldsmith, South Suburban Gas Company.

*Assistant Hon. Secretary.*—Mr. A. Tennant, Croydon Gas Company.

*Council for* 1925-26.—Messrs. W. T. Kenshole, A. Tennant, H. W. Kerridge, F. S. Larkin, J. K. Grant, E. C. Le Jeune, and J. Hewett.

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**Small Trenching Machines.**—An account has been given to the Illinois Utilities Convention by Mr. A. G. Ford, of the success of his Company—the Western United Gas and Electric Company, of Aurora, Ill.—in obtaining a gas man's trenching machine. That is to say, a machine that will dig mains, services, and pipelines, and do it fast and continuously at low cost. The work of uncovering pipe for reclamation must necessarily be done with a minimum of hand labour; for it is very easy to spend more money uncovering pipe than the pipe is worth. The small trencher makes it possible to uncover at a profit pipe that would otherwise have been left in the ground. Figuring on seven months' work, a table of costs for three machines shows 6·54 c. per foot of digging. This is calculating depreciation and interest on the basis of 28 miles of trench as the life-work of a machine. Mr. Ford, however, is of opinion that 40 miles of trench for the life of a machine would be nearer the fact; and by using this figure as a basis, the total cost per foot would be reduced to about 5·5 c.

# CORRESPONDENCE.

*[We are not responsible for opinions expressed by Correspondents.]*

## Low C.V. Gas and the Unaccounted-for Percentage.

Sir,—I was very interested to read Mr. Keillor's letter in the "Journal" last week. Let me assure Mr. Keillor at the outset, however, that I have not rushed blindly into print without realizing that many would not agree with my remarks. My statements may appear ridiculous to him; probably he has been fortunate in controlling a works and distribution department that has been kept in excellent condition for a long period. It is obvious from my remarks that this was not the case at Newark; and my intention was to make it clear that a low-grade gas cannot be distributed everywhere under present conditions without the possibility of trouble.

Mr. Keillor states that a 500 B.Th.U. gas, if not properly purified, will cause meter troubles. I quite agree with him; but my point is: Given a 400 B.Th.U. gas and a 500 B.Th.U. gas, each with the same amount of impurities, the 400 B.Th.U. gas will cause trouble quicker than the 500 B.Th.U. gas. The protective influence of the oily hydrocarbons in the richer gas will do much towards protecting meters internally. Many of us experienced acute meter troubles during the war, when oil-washing. Mr. Keillor says the secret lies in the purity of one's gas. This is obvious.

I stated that it may be possible to distribute a low-grade gas successfully with dry meters, providing every trace of impurities is removed. I am very glad to hear of this case of successful practical experience. I still think, however, that before a low-grade gas can be distributed successfully all over the country, much preliminary work in the way of improving, purifying, and cleaning-out distribution systems will require to be undertaken in many cases, unless someone comes along with a new type of meter. After all, there has probably been less development in the dry meter than in any other type of gas apparatus.

In the published returns of the Gas Regulation Act, 55 undertakings have increased their declared calorific value, and 7 have reduced it, since obtaining their original Order. The tendency seems to favour the higher calorific value at present. Perhaps the time will arrive when legislation will decide for us (as it is unlikely we shall all agree otherwise) a standard calorific value, when one bone of contention in the gas industry will have been buried.

F. A. West,
Engineer and Manager.

*Newark Gas Company,*
*May 14, 1925.*

## South Metropolitan Gas Bill.

Sir,—The result of the above Bill before a House of Commons Committee will introduce a new train of thought as to the future policy of the gas industry, particularly as applied to company undertakings.

The stabilization of the basic price for ten years, following on a period of five years, indicates that Parliament appreciates the necessity for protecting a great industry from periodical and frequent revisions, and that Parliament also appreciates that the interests of the public are best served by eliminating from investors a feeling of insecurity—a sure influence against obtaining the cheap capital so beneficial to gas companies and their consumers.

It seems to me that the Gas Regulation Act of 1920 requires some improvement in its formula whereby the capital expenditure is taken into consideration, and the introduction of a provision giving the Board of Trade power to stabilize standard prices over periods of five or ten years. Otherwise a possibility of frequent revision will undoubtedly influence gas companies to "mark time" and become sterile.

R. W. Edwards.

*Aldershot Gas, Water, and District Lighting Company,*
*May 15, 1925.*

# APPLICATIONS FOR PATENTS.

**[Extracted from the "Official Journal" for May 13.]**

Nos. 11,474 to 12,159.

Dempster & Sons, Ltd., R.—"Gas-retort settings." No. 11,987.

Duffield, F. L.—"Production of gas from pulverized fuel." No. 11,946.

Glasgow, A. G.—"Water gas generators." No. 11,829.

Glover & Co., Ltd., G.—"Money-boxes for coin-freed mechanism." No. 11,957.

Heyl, G. E.—"Distillation retorts." No. 11,760.

Humphreys & Glasgow, Ltd.—See Glasgow, A. G. No. 11,829.

Macleod, J.—"Distillation of naphthalene." No. 11,866.

Mitchell, G. P.—"Gas fires." No. 11,722.

Parkinson and W. & B. Cowan, Ltd.—"Safety valves for vapour lamps, &c." No. 12,038.

Selas Akt.-Ges.—"Safety device for glass furnace gas pipes." No. 11,635.

Selas Akt.-Ges.—"Regulating device for gas and air mixing plants, &c." Nos. 11,636, 11,637, 11,638.

Soc. du Verre Sili-Chrome.—"Cleaning gas mains." No. 12,112.

Tilley, F. C.—"Geyser, &c." No. 11,771.

Toogood, H. J.—See Dempster & Sons, Ltd., R. No. 11,987.

# REGISTER OF PATENTS.

## Purification of Gases.—No. 223,191.

Urbain, E., of Paris.

No. 7239; March 21, 1924. Convention date: Oct. 13, 1923.

In introducing this patent, Dr. Urbain shows, by general observation and detailed examples, the possibility of completely purifying distillation and numerous other gases by utilizing a series of apparatus filled with absorbent carbonaceous material; each apparatus being worked so as to fulfil certain specified conditions. He points out that the variations of temperature in the carbonaceous material may give very useful indications to regulate the working conditions. The claims show the combination of steps which constitute his process; and we reproduce them *in extenso*.

1. The purification of gases obtained by the distillation of fuels and the recovery therefrom of valuable products, by bringing such gases, after they have been freed from tarry matters, into contact with absorbent carbonaceous materials or other solid absorbent substances having similar properties in a series of vessels, so as to remove: First the sulphuretted hydrogen in the state of free sulphur by oxidation; secondly, the ammonia in the state of ammonium sulphite by causing it to react in the presence of carbonaceous material, with water vapour and sulphurous acid; thirdly, the condensable hydrocarbons and cyanogen compounds; and lastly, if desired, the carbonic acid; and subsequently extracting the absorbed products by any known method.

2. In the process claimed in Claim 1 the absorption of ammonia as gas instead of its precipitation as ammonium sulphite, as an alternative step in the said process and the subsequent removal of the absorbed compounds from the carbonaceous material.

3. The process of purifying gases obtained by the distillation of fuel and of recovering valuable products therefrom, substantially as described.

4. Distillation gases when purified by the process described and claimed.

## Mantles for Upright Burners.—No. 224,850.

Gumperz, A., of Berlin-Schoneberg, and Meyer, A., of Berlin-Charlottenburg.

No. 2281; Jan. 28, 1924. Convention date: Nov. 15, 1923.

This invention is for a self-shaping upright incandescent mantle; the patentees claiming "a non-incinerated self-shaped upright incandescent mantle, for use with upright burners, provided at the base with a ring of metal or ceramic or any other suitable material, by means of which the mantle is placed on the burner head, so preventing the mantle from slipping down the burner head, and having at the top-end a loop by which it is hung on the fork of the burner."

Alternately, the mantle is secured direct upon the burner head with wire ribbon, or asbestos thread.

## Low-Temperature Distillation.—No. 225,513.

Kohlenscheidungs G.m.b.H., of Berlin.

No. 19,145; Aug. 12, 1924. Convention date: Nov. 28, 1923.

Introducing their invention for a low-temperature process, the patentees say that in the course of laboratory experiments the fact was established that with careless and sudden heating of the coal the yield of original tar became greater and the quality of the semi-coke better. If, for instance, Essen coal was distilled in the usual manner by gradually heating it to a temperature varying between 500° and 550° C., from 9 to 9·5 p.ct. of tar free from water was obtained. If, however, the apparatus was heated to this temperature prior to being filled with the coal, whereby the latter reached very quickly the low distilling temperature, and if the heating was carefully increased, as much as 11·3 p.ct. of tar was obtained from the same material; the additional amount consisting principally of heavy oils. In addition thereto the semi-coke recovered was considerably firmer and much less porous, as was proved in the course of a most careful examination.

Further researches proved, in addition to a greater yield of hydrocarbons and a better semi-coke, that numerous difficulties accompanying the older processes are overcome or lessened—for instance, the caking and swelling of the coal, the crumbling away of a large proportion so as to form dust, and so forth.

According to the invention, however, the new process consists in the fact that the material, which is not preheated at all or is only preheated to a slight extent, is suddenly subjected to a temperature which is much above normal distilling temperature—for instance, 500° C.—so that the material itself is raised as quickly as possible to the distilling temperature, and that after reaching this temperature it is immediately removed out of reach of the high temperature in order to undergo an after-treatment at the normal distilling temperature.

The main feature consists in the rapid raising of the heat to the distilling temperature by using a degree of heat essentially above (say) 500° C. For this reason, any preheating must not be carried to a degree at which it promotes, by the expulsion of water and the like, the effect of the quick subsequent heating according to the invention. The further treatment of the material at the distilling temperature serves chiefly to expel the last traces of the original tar, &c., and particularly to improve the quality of the semi-coke. With the process, say the patentees, it is of importance that, in order to work within low-temperature limits, the heating of the coal be not carried too far by leaving it too long in the high-temperature zone. The hot zone in which the coal must remain for a short period only will, for

instance, be at about 700° C., and be increased to such a degree only as is absolutely necessary for effecting the rapid heating of the material.

It is pointed out that, in addition to the advantages mentioned, the amount of the material passing through the apparatus is considerably increased, since the speed of working is much greater than before. The patentees suggest that "rapid distillation at low temperatures" properly describes the distinctive feature of the invention.

Experiments have had the further surprising result of showing that the use of higher temperatures than the usual distillation temperature—for instance, 500° C.—is very advantageous not only for the treatment of the sticking coal but also for improving the quality of the distillates. Consequently the yield, especially of light oils, is increased if the hydrocarbons, immediately after their expulsion are passed through a hot zone—for example, through the first zone of the distilling apparatus, which, according to the invention, has been raised to a temperature of 700° C.

## Preparation for Repairing Retorts, &c. No. 231,650.

SELLARS, B. C., of Droylsden.

No. 6176; March 11, 1924.

The patentee claims, for the repair of furnaces, retorts, &c., a mixture of dried silicate of soda with alumina, asbestos, fireclay, ganister, or barytes. The powdered mixture may be stored without ill effects, and is prepared for use by the addition of water.

## Gas Ovens.—No. 231,664.

LIGGINS, J. W., of Accrington.

No. 7777; March 27, 1924.

In order to prevent the excessive ingress of cold air into an oven, the patentee claims the fitting of a plate, shaped so that a portion lies above the level of the burners and a portion below each burner; gaps being left for the passage of secondary air.

## Lighting Control Apparatus.—No. 231,943.

KING, W. E., and THE GAS METER CO., LTD., both of Kingsland Road, E. 2.

No. 869; Jan. 11, 1924.

This invention is for a modification of the firm's well-known automatic lighting mechanism, wherein a train of clockwork, serving to operate the gas tap, is released and locked by means of a trip or stop.

The object of the invention is to simplify its working as applied to variable illumination, such as shop lighting.

The claims are for the inclusion of a mutilated toothed wheel which is partially rotated at intervals automatically so as to bring the teeth thereon into engagement or to bring them out of engagement with teeth on the fly pinion or similar part; and a circular disc, preferably of flexible material, a portion or portions of the periphery of which project so as to engage and temporarily lock the fly pinion in accordance with the desired predetermined sequence.

## Valves for Purifiers, &c.—No. 232,012.

DEMPSTER, R., & SONS, LTD., HORSFALL, J. E., and LUMB, H., all of Elland.

No. 6756; March 17, 1924.

The object of this invention is to introduce a simpler valve arrangement than that covered by specification No. 211,269 [see "JOURNAL" for March 26, 1924, p. 791], and one which will reduce the number of valves required for performing the different operations.

The new design will enable the various operations to be performed by movement of a single control member for each valve, one of which is preferably situated at each end of each individual purifier.

Rotary tubular valves are employed in place of disc valves, and are mounted in casings and control ports or passages which lead to upper and lower portions of each purifier. Adjacent casings are placed in communication with one another by an intermediately arranged passage, and the lower end of each valve and casing communicates with a main inlet, or a main outlet pipe. Each valve is closed at its upper end and is keyed or otherwise fixed on a spindle which projects through the top of the valve casing and constitutes the single control member referred to.

Fig. 1 is a vertical section showing two adjacent casings connected by an intermediately arranged passage; and fig. 2 is a section taken on line 2—2 of fig. 1.

FIG. 1.

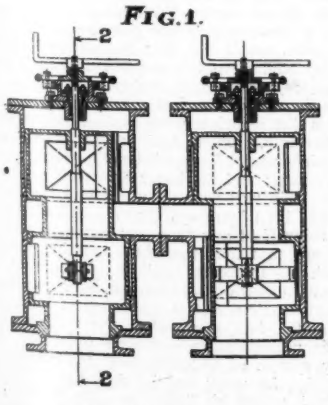
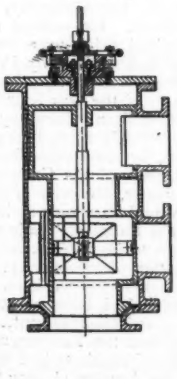



FIG. 2.



Rotary Purifier Valve.—R. Dempster & Sons, Ltd.

## Prepayment Mechanism.—No. 232,016.

DOUGALL, J., of Chiswick, W. 4.

No. 6955; March 18, 1924.

This invention is for a safety device applicable to the type of prepayment meter mechanism described in specification No. 214,077 [see "JOURNAL" for May 21, 1924, p. 541].

Inserted between the external operating handle and the coin carrier, it consists of a shutter rigidly attached to the operating handle and co-operating with the coin carrier in such a manner that after insertion of a coin the operating handle has a certain amount of free movement in the driving direction before motion is imparted to the coin carrier, such free movement being sufficient to cause the shutter to obstruct the slot in the price-changing disc before driving contact is established between the operating handle and the coin carrier. The shutter itself forms the driving means for the coin carrier.

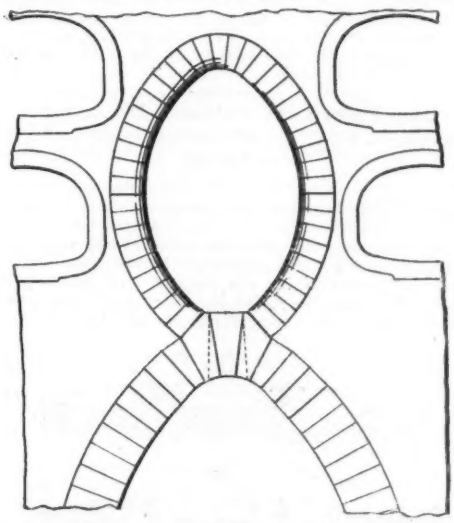
The invention also provides that the driving edge of the shutter and/or the edge of the price-changing disc towards which the coin is driven is or are chamfered in such a manner as to facilitate entrance of the coin into the coin carrier on rotation of the operating handle.

## Retort Settings.—No. 232,357.

TOOGOOD, H. J., and DEMPSTER, R., & SONS, LTD., both of Elland.

No. 2510; Jan. 31, 1924.

According to this invention, which relates the regenerator furnaces of retort settings, the abutments on the producer arch for the combustion chamber arches are above or outside the normal contour of the producer arch, and the combustion chamber arches are made in the form of complete ellipses. This construction might seem to be disadvantageous in practice, as it would block the view of the producer gas nostrils from the inspection plugs; but in order to avoid this the keystones of both the producer arch and the superimposed series of combustion arches are combined (the nostrils coming between the combustion chamber arches). This construction gives the combined advantages of added strength of the completed elliptical arches, increased stability of the producer arch, the ability to withstand the indeterminate side-strains due to the increased temperature and use of silica, and withal the full visibility of the nostrils is maintained.



Producer and Combustion Arches.—R. Dempster & Sons, Ltd.

Furthermore, the construction enables the elliptical combustion chamber arches to be designed as complete ellipses of the fullest major and minor axes permitted by the particular grouping of the retorts, and with rounded or bull-nose arch bricks; such ellipses being designed of such shape as to accommodate the active flame of combustion (or inner cone of flame) issuing from the nostrils, with the very minimum of impinging of flame—to the advantage of the life of the refractories and evenness of carbonizing temperatures.

The shape of the keystone brick and the adjacent crown bricks are clearly shown in the drawing which we reproduce. The dotted lines indicate a nostril between adjacent combustion chamber arches.

## Prepayment Mechanism.—No. 232,401.

FOX T., and ROBINSON, S., both of Liverpool.

No. 8393; April 3, 1924.

Patent of Addition to No. 180,406, of Feb. 17, 1921.

This invention relates to the type of prepayment device claimed in specification No. 180,406 [see "JOURNAL" for July 5, 1922, p. 39].

Therein, the handle is adapted to pivot in a plane at right angles to the face of a guard disc acting as coin carrier. It is additionally

provided with a locking member and a guard plate, so that when the coin slot of the price-changing disc and the coin carrier coincide, the spindle is locked against rotation by the locking member or alternatively covered by the external guard.

The object of the present invention is to prevent access through the coin slots in their coincident position to the quantity wheel actuated by the coin. A pivotal slot-covering plate is arranged internally of the guard disc and is adapted to be locked in position by the locking member of the handle to cover the slot, and to be forced out of the covering position by the coin when forced into the coin carrier by rotation of the handle in a plane at right angles to the face of the price-changing disc.

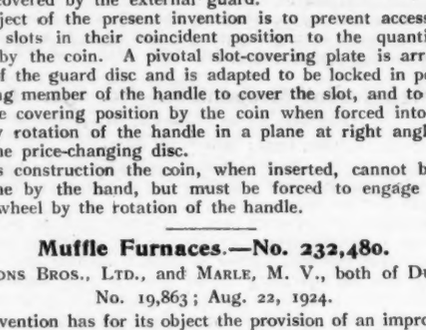
By this construction the coin, when inserted, cannot be pressed fully home by the hand, but must be forced to engage with the quantity wheel by the rotation of the handle.

### Muffle Furnaces.—No. 232,480.

Gibbons Bros., Ltd., and Marle, M. V., both of Dudley.

No. 19,863; Aug. 22, 1924.

This invention has for its object the provision of an improved brick or unit for use in constructing the muffle or inner walls of a furnace chamber. The brick is made longer in one dimension than in the other, and comprises a central corrugated or waved portion of relatively small thickness, with the waves arranged transversely of the




**Brick for Muffle Construction.—Gibbons Bros.**

brick, and a peripheral portion of a width sufficient to contain the corrugations. Tongues or grooves for engagement with adjacent bricks are provided on all four of the outer edges of the peripheral portion, and these tongues and grooves are of shallow dimensions in comparison with the width of the otuer edges. Preferably, the thickness or depth of the peripheral portion is less than its width—*i.e.*, less than the over-all thickness of the brick.

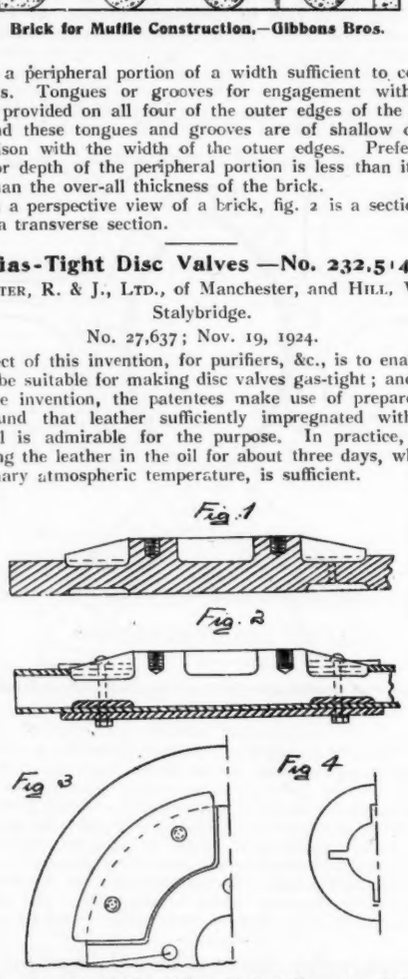
Fig. 1 is a perspective view of a brick, fig. 2 is a sectional view, and fig. 3 a transverse section.

### Gas-Tight Disc Valves —No. 232,514.

Dempster, R. & J., Ltd., of Manchester, and Hill, W., of Stalybridge.

No. 27,637; Nov. 19, 1924.

The object of this invention, for purifiers, &c., is to enable leather facings to be suitable for making disc valves gas-tight; and in carrying out the invention, the patentees make use of prepared leather, having found that leather sufficiently impregnated with ordinary codliver oil is admirable for the purpose. In practice, they find that soaking the leather in the oil for about three days, when the oil is at ordinary atmospheric temperature, is sufficient.




**Leather-Faced Disc Valve.—R. & J. Dempster, Ltd.**

The application of the principle is clearly seen in the drawings we reproduce. Fig. 1 shows the metal disc without facings, while in fig. 2 are seen an upper and lower leather held in position by metal clamps and bolts. The upper clamps are four in number and segmented in shape, so as to clear the webs necessary for strengthening the disc; and the upper leather must be shaped for the same reason. They are shown in figs. 3 and 4 respectively.

# PARLIAMENTARY INTELLIGENCE.

## HOUSE OF LORDS.

### Forfar Gas Order Confirmation Bill.

A Bill to confirm a Provisional Order relating to Forfar gas was presented last week by Lord Balfour of Burleigh, read the first, second, and third time, and sent to the Commons.

## HOUSE OF COMMONS.

### Progress of Bills.

Bill reported, with amendments: South Metropolitan Gas.

The petition deposited by the Brighton and Hove General Gas Company against the New Shoreham Harbour Bill has been withdrawn.

The Forfar Gas Order Confirmation Bill was brought from the House of Lords, read the first time, and passed for third reading.

The Kilmarnock Gas and Water Provisional Order Bill has been read a second time, and committed.

### Statutory Gas Companies (Electricity Supply Powers) Bill.

This Bill, promoted by Mr. Clarry, was considered on the 14th inst., read the third time, and passed.

### Scientific Research.

Replying to Mr. H. Williams last Friday, Mr. Guinness stated that a sum of £4,045,500 had been provided in the 1925-26 estimates for scientific research of all kinds.

### Gas Regulation Act.

A copy was presented of a draft of a Special Order proposed to be made by the Board of Trade under section 10 of the Act, on the application of the Haverfordwest Corporation.

The draft Special Orders for the Altrincham Gas Company and the Stockton-on-Tees Corporation have been approved, on the motion of Sir Burton Chadwick.

## MIDDLESEX COUNTY COUNCIL BILL.

### Petition by the Brentford Gas Company.

This Bill was under consideration last week by a Committee of the House of Commons, presided over by Colonel Wheeler. Its object is to confer further powers upon the Middlesex County Council and the Metropolitan Electric Tramways, Ltd., in reference to their light railways and tramways, and to enable the Council to make street improvements and tramways. The Brentford Gas Company, whose area of supply includes a large part of the county, petitioned against the Bill because, under the powers sought, lands and property of the Company might be compulsorily acquired, and their mains, pipes, and apparatus might be altered and interfered with. Therefore, if the powers in the Bill were granted, it was asked that provision should be made for fully protecting the Company's property, rights, and interests.

Though the Company were represented by Counsel (Mr. Ralph Bury), and Mr. A. A. Johnston (General Manager) and other officials were present in the room, the matter was not dealt with by the Committee. Negotiations are proceeding between the Council and the Company; and it is hoped that an agreement will be arrived at before the Bill reaches the House of Lords.

## SOUTH METROPOLITAN GAS BILL.

### Thursday, May 7

(*Concluded from p.* 475.)

At the conclusion of Dr. Carpenter's evidence, he was asked by a member of the Committee what his opinion was with regard to a long-dated provision for revision. His reply was that a period of 10 or 15 years would give him reasonable time in which to develop his undertaking—a certain security of tenure. It was pointed out by Mr. M'Millan, however, that an opportunity for revision would be presented when the Company next came to Parliament, and certainly 10 or 15 years would not elapse before they did this.

Mr. *Frank Jones* (Vice-President of the South Metropolitan Gas Company, Chairman of the Wandsworth, Wimbledon, and Epsom District Gas Company, and a Director of other gas companies) gave evidence. He pointed out that, under the Gas Regulation Act, the standard price was fixed by adding to the pre-war standard price (which was fixed by Parliament) an amount which would cover the increased costs of production, beyond the control of the Company, since 1914. If the Gas Regulation Act principle were applied to the South Metropolitan Company, however, which had its standard price abolished in 1920, that principle would be applied not to the pre-war price, but to a price fixed in 1920; and the latter figure did not cover the costs of the Company. This was proved by the fact that, subsequently, the price of gas had been increased beyond the basic price. It would be a very serious thing if at any time any persons could go to the Board of Trade and say that they thought a certain principle ought to be applied, and ask the Board to apply it. Discussing the question of the effect of the reduction of the Company's present basic price upon the workers, he pointed out that a great deal of industrial trouble had been caused by the fact that, when the workers had increased their output, their remuneration had been reduced. He said that the Parliamentary system of watching over the conduct of gas undertakings had worked quite well; and he challenged Counsel for the London County Council to put his finger on a single instance where the system advocated for the future had failed in the past.

In cross-examination, some discussion arose as to the working of the Gas Regulation Act. Mr. Abady's point was that, when arriving at a standard price under the Act, the starting point was the pre-war standard price, which was fixed by Parliament, and the Board of Trade fixed a new standard price which would leave the gas undertakers in the same position as before the war. A gas company could go to the Board of Trade at any time to have its standard price increased, if necessary; and he put it to witness that the Act afforded perfect elasticity, so as to prevent a company being prejudiced by alterations in economic conditions. Mr. Jones said it fell short of that; and he pointed to the effect which regulations for revision at any time had upon the investor, who never knew what his dividend would be.

Mr. ABADY said that what the Company were asking for was that the basic price should be fixed so high that it accommodated any change in costs which might occur.

*Witness* said that he wanted the price fixed by Parliament.

As to the attitude of the gas industry at the time the Gas Regulation Act was being framed, it was suggested by Mr. Abady that the industry went to the Board of Trade, and asked that a Bill should be promoted, giving the Board power to revise charges, in contradistinction to the previous practice of coming to Parliament. Also, he suggested that the National Gas Council had passed a resolution approving the Bill. The reply of Mr. Jones was that the industry had asked the Board of Trade to put them in a position to pay their dividends, and to get them out of the then existing impossible position. In 1919 gas companies had the right to appeal to Parliament; but at present, when local authorities asked for a revision of price by the Board of Trade, the companies could not appeal to Parliament.

Sir *Herbert Hamblin* (President of the Institute of Bankers, and Deputy Chairman of Barclay's Bank) said that in May, 1920, the 4 p.ct. stock of the South Metropolitan Company had stood at £55 for £100, but before the war the value was £112. At present the Company's basic stock stood at £95. It was important that stocks of this character should be stable, because the investor in this class of stock was, as a rule, of a conservative type. As to the reason for the high value of the stock before the war, he said it was the fact that the Company had enjoyed good credit, and was efficiently managed, which had probably induced many investors to take up the stock. The standard price had not been interfered with for many years; and on that basis the stock had attained a very desirable position on the market. If the basic price were to be overhauled at frequent intervals, in accordance with changes in economic conditions, the stock would certainly be affected. The carrying of a fairly wide margin between the selling price and basic price gave a feeling of confidence to investors, and induced them to buy stock on a 5 p.ct. basis, with a faint hope that they might get more. Undoubtedly, those who advised investors looked at the basic price; and the continuance of the basic price was an element in the stability of the investment. Therefore, it should not be interfered with lightly, and should only be overhauled when there was an extreme divergence which rendered it an unfair price. Cheap capital enabled cheap gas to be supplied.

Mr. ABADY, cross-examining, pointed out that when the stock of the Company had stood at £55, in 1920, the dividend was restricted to 3 p.ct., because the Company were working under the Temporary Increase of Charges Act. The present figure of £95, however, was on the basis of a 5 p.ct. dividend.

COUNSEL asked the witness whether, if the basic price were reduced to a point at which the Company would be able to pay the dividend paid last year, and still leave a reasonable margin, the price of the stock would be affected materially.

*Witness* replied that it would not be affected materially, but the alteration would have an effect, because this was one of the factors considered when recommending a particular stock.

Mr. M'MILLAN, re-examining, said they were not concerned at the moment with the effect of one alteration of the basic price, but the effect of frequent alterations.

*Witness* agreed.

Following a request by the Chairman, the promoters promised to give information with regard to neighbouring gas companies with stock corresponding as nearly as possible to the stock of the South Metropolitan Company, in order that the Committee might see how the investing public regarded the stock of this Company as compared with that of other companies.

Mr. *F. I. Pitman* (Messrs. Rowe & Pitman, Stockbrokers) also gave evidence with regard to the stock of the Company, and emphasized the necessity for an adequate margin between the selling price and basic price. If, after the South Metropolitan Company's scheme had been working for five years, a clause were imposed upon them providing for the revision of the basic price at any time, it would produce a very bad impression in the mind of the investor, because it would appear to him that Parliament, for some reason, had thought fit to pull the Company up.

Mr. *William Cash*, F.C.A. (of Messrs. Cash, Stone, & Co., Chartered Accountants, and Chairman of a number of gas companies, Vice-President of the National Gas Council, &c.) said that the undoubted tendency of revision under the Gas Regulation Act provisions was to sterilize the position of gas companies. They were deprived of any advantage which would have arisen out of economies or growth of business if there had been no war. He was not complaining of the way in which the Board of Trade had carried out their duties, because he personally believed they were fair and reasonable; but the difficulty lay in the application of the formula in the Act. It was not an advantage to a company to have its price liable to revision continually. Such facts as this had to be stated in a prospectus; and the investor, who did not understand these things precisely, was left in doubt as to what sort of dividend he might get. Dealing with the present rise in costs, he said he doubted whether the increase of ¾d. per therm which had been made by the Company recently in the selling price of gas was really sufficient; but the Company were notorious for endeavouring to sell gas at the lowest possible price, which policy was the right one.

Mr. Cash then handed-in a statement showing the results of revisions of charges of gas companies under the Gas Regulation Act. These companies were the Gas Light and Coke Company, and the Commercial, Eastbourne, Newcastle, Walker and Wallsend, Brighton, Wandsworth, Portsea Island, Brentford, and Tottenham Companies. All these had had the standard prices, granted originally under the Act, reduced recently; and the table showed that in no case was the present standard price below 11d.

The following table was then handed-in to show what would be the present standard price of the South Metropolitan Company if the Gas Regulation Act had been applied:

*Comparison of* 1913 *costs with those for* 1924 *as per the printed accounts for those years, with adjustments for changes since December,* 1924 *showing increase of* 1913 *standard price by reference to increased costs.*

| | 1913. | £ | | 1924. | £ |
|---|---|---|---|---|---|
| 1. Working expenditure . . | | 1,970,060 | .. | | 4,111,845 |
| *Less*— | | | | | |
| 2. Rent of stoves, meters, &c. | £254,296 | | .. | £406,736 | |
| 3. Residuals . . . . . | 667,553 | | .. | 1,244,986 | |
| 4. Sundry receipts . . . | 2,970 | | .. | 4,712 | |
| 5. Co-partnership bonus . | 52,348 | | .. | 66,074 | |
| | | 977,167 | .. | | 1,722,508 |
| 6. | | 992,893 | .. | | 2,389,337 |
| 7. *Add* net interest . . . | | 67,718 | .. | | 119,667 |
| 8. | | £1,060,611 | .. | | £2,509,004 |
| | | d. | | | d. |
| 9. Cost per therm . . . . . | | 3·402 | | | 6·933 |
| | | | | | d. |
| 10. Increased cost to Dec. 31, 1924 . . | | | | | 3·531 |
| 11. Increase in wages from Jan. 1, 1925 (£40,000) . . . . . | | | | | ·110 |
| 12. Increase in net cost of coal since Jan. 1, 1925 . . . . . | | | | | ·287 |
| 13. Savings in costs due to improved working results . . . . . | | | | | ·338 |
| 14. Cost of extra 1 p.ct. standard dividend granted by Parliament in 1920 . | | | | | ·182 |
| 15. Total increased costs . . . . . | | | | | 4·448 |
| 16. Pre-war standard price of 3s. 1d. per 1000 c.ft. = per therm. . . . | | | | | 7·400 |
| | | | | | 11·848d. |

Mr. ABADY, examining Mr. Cash's table, pointed out that the pre-war standard dividend of the Company was 4 p.ct., and not 5 p.ct., and that if the pre-war standard price were expressed in terms of a 5 p.ct. dividend it would have been equivalent to 5·9d. per therm, instead of 7·4d. If the basic price which entitled the shareholders to the same dividend to-day was 11d. per therm, the increase above the pre-war standard would amount to 5·1d. per therm. This was an increase of nearly 100 p.ct.

Mr. *Cash* did not agree with this way of putting it. If Counsel wanted to say that the standard price in 1914 was 5·9d., and not 7·4d., then there would have to be added the increased cost between 1914 and 1919, which was about 5d., giving a figure of 10·9d., which was very near 11d.

Mr. *H. T. Manley* (an Employee-Director of the South Metropolitan Company), in evidence, said that the workers fully understood the principles of co-partnership, and were fully alive to the fact that under the present system the consumer obtained a better distribution of profits than under the sliding-scale. The scheme had had a very good effect upon the attitude of the men towards the Company. There were 7775 co-partnership owners of stock, holding capital to the extent of £540,000; and since 1920 there had been strenuous and continuous efforts on the part of the men to keep-down the price of gas by means of hard work, as well as by skilful and intelligent work. The workers appreciated the fact that they had a statutory right to their benefit under the present scheme. The effect of reducing the basic price would be disastrous for all parties concerned. It would remove the workers' sense of security. They were keen on investing their savings in the Company; and if there was a possibility of the basic price being reduced, they would ask themselves seriously whether they would not do better to invest their savings elsewhere.

The Committee adjourned until Friday.

### Friday, May 8.

Sir *William Plender* (Messrs. Deloitte, Plender, Griffiths, & Co., Chartered Accountants) said that he had advised the Company with regard to the provisions of the Act of 1920. The basic price of 11d. did not represent the exact equivalent, on the thermal basis, of the pre-existing standard price, but was separately arrived at. Dealing with the importance of an adequate margin between the selling price and the basic price, he said that costs of production were at present on the up grade, and wages were rising. An increase in rates of wages was granted as from Jan. 1, 1925, which was estimated to cost the Company £40,000 per annum, or 0·11d. per therm. Further, the net cost of coal was increasing, in spite of a reduction in the gross cost. This increase for 1925 was estimated at 0·287d. per therm, so that, together with the increased cost of wages, the increase would be 0·397d. per therm. In 1924 the amount by which the cost of gas to the consumer was less than 11d. per therm was £1,136,633, equivalent to 3·140d. per therm, so that the increased costs would reduce the latter figure to 2·743d. per therm. Further claims for increased wages in the gas industry, however, had been submitted. From an announcement in "The Times" for April 30, the men's claims were for an increased wage of 2s. per day, payment at time-and-a-quarter for night duty, and two weeks' annual holiday with pay. The effect of the increase of 2s. a day was equivalent to about two-thirds of a

penny per therm. Whether the increase would be granted or not, he did not know; but he mentioned it as a possible contingency which would reflect itself in the increased cost of gas. In view of the varying conditions since 1920, he did not think there had been at any time an excessive margin between the basic price and the selling price. In considering what was an adequate margin to allow, they had to take long views. The purpose of the fixation of the basic price was to enable the Company to proceed with a measure of assurance in making their arrangements for business, and as affecting their financial position in the market. Allowance had to be made for the fact that at present there was not the same stability as before the war. In the present period the margin should certainly not be less than before the war. Between 1920 and 1921 the net cost of coal had risen by the equivalent of 2d. per therm; and in 1922 the net cost of coal was 1d. per therm over 1920. In further justification of the maintenance of the basic price of 11d., he referred to a period of 30 years prior to the war, with a view to ascertaining what the margin was between the standard price and the price charged by the Company for gas supplied. He had found that, with perhaps one exception (1901), the margin between the two prices was in each year proportionately greater than the margin now existing. At present the selling price was 2¼d. per therm, or 20·5 p.ct., below the basic price. In 1914 the amount charged was 28·4 p.ct. below the standard price; and in each of the years 1910 to 1913 it was 29·7 p.ct. below the standard.

A table was submitted which demonstrated that, since the Act of 1920 became operative, the prices charged to the consumers had, with the exception of two abnormal half-years, been below the basic price. During 1923 and 1924 they were appreciably less. The consumers had received benefits far in excess of their share, as measured by the amounts distributed to the co-partners and stockholders; the dividends paid had been moderate; and the percentage of increase since the war was very much below that of Government or Trustee stocks. The percentage margin between the prices charged and the basic price had been no higher since 1920 than for many years before the war, when no alteration in the then standard price was suggested or attempted. The margin now prevailing was only fair and reasonable, in order to preserve a balance for emergencies, which even recent experience had proved to be a necessity.

Mr. ABADY, cross-examining, said that, if 1924 were compared with a previous year under this scheme, and there had been an increase in the sale of gas owing to the number of consumers having increased, and the selling price had been maintained at the same level, while the benefit to the individual consumer would be the same, the benefit to the shareholders would be increased, because the amount saved to the consumers would be expressed in terms of a larger number of therms sold. Therefore, the shareholder would have his share increased without the price to the consumer being reduced. Under the sliding-scale, a reduction of 1d. in the price of gas would entitle the shareholder to one increment of dividend; and the amount that a shareholder could take would be limited by the amount of his shares. The inference he wanted to draw was that, with a basic price, there was less incentive to reduce the selling price of gas than there would be under the sliding-scale, because, by a mere increase in sales, the shareholder could divide a larger amount.

Sir *William Plender* said that, whatever the margin might be, the Directors would always reduce the price to the lowest possible figure. Their main interest was the consumer; and, so far as he knew, this had never been questioned during the last five years.

Mr. ABADY replied that he did not think it would be questioned in respect of any gas company. Continuing, Counsel pointed out that the Company had a reserve fund and a special purposes fund; the latter being designed to meet expenses incurred by reason of circumstances which due care and management could not have prevented. Therefore, if it were said that the margin between the selling price and basic price was necessary in order to meet contingencies, it must be remembered at the same time that there were other resources.

*Witness* observed that the question of drawing on the funds depended entirely on the present conditions; it was a question of what was the best financial policy. He admitted that at present the margin was considerably more than that in 1920, when the question of contingencies was considered.

Re-examined with regard to the point that the shareholders benefited by a mere increase in sales, witness said that a low selling price stimulated sales, and the increased sales might, therefore, be the result of the Company's policy of selling at the lowest possible price.

This closed the case for the Gas Company.

Mr. ABADY, addressing the Committee on behalf of the London County Council, said it had been stated by the Company that they had come to Parliament in 1920, and had made a special case before a Parliamentary Committee, and had urged this case on their distinguished record—a record which was to be regarded as different from the records of other companies. This, generally, was the note which had been sustained throughout the present proceedings; and it was suggested that this record justified a special treatment being accorded to the Company. If the clause which the London County Council asked for were not inserted in the Bill, the South Metropolitan Gas Company would be the only one in the Kingdom, selling gas by the therm, which would not be subject to revision in the manner provided by the general law. This was a strong position to take. The County Council had no complaint to make as to the manner in which the South Metropolitan Gas Company had dealt with the public in the past, or had approached the County Council with regard to matters concerning them. There was no rancour. The Council were merely pursuing their public duty. When the Company came to Parliament in 1920 they were suffering from something from which all sliding-scale companies were suffering. It had been said that the general Act did not apply with absolute uniformity to all gas undertakings in the provinces and in London. He maintained that it did; and it applied to the South Metropolitan Company itself with respect to the quality of the gas supplied. Therefore, it applied absolute uniformity to every undertaking in the United Kingdom which was selling gas by the therm, including the South Metropolitan Company, except, in the latter case, in regard to the one matter of the method of fixing the price. Dealing with the present position under the Gas Regulation Act of 1920 as regards revision of price, Counsel said it was idle to suggest that to-day there was nobody at the Board of Trade capable of dealing with the revision of prices. The Board of Trade had already, under the Gas Regulation Act, revised the prices of hundreds of companies, some of them in the downward direction. The procedure was that schedules of costs were prepared, as before the Act, and at the time of revision, and the necessary adjustments were made. On this ground, therefore, there was no reason why the South Metropolitan Gas Company should not come within the same procedure. Moreover, it was not accurate to say, as had been claimed on behalf of the Company, that its Act of 1920 introduced for the first time a system of charging for gas on a heat basis. As a matter of fact, at the time the Company's Act was passed, there were about a hundred companies which had received Parliamentary sanction to supply on the basis of calorific value; and the bulk of the gas in the London district was supplied on a heating basis at that time. It was true that up to 1920 the obligation still remained upon the gas companies to charge by the thousand cubic feet, but each cubic foot had to contain a prescribed number of thermal units. He contended, therefore, that the South Metropolitan Gas Company could not claim to be pioneers as regards selling gas on a heat basis. Dealing with the Company's Act of 1920, Counsel agreed that there was a material alteration of the Company's position under that Act, to which attention should be drawn. As things stood before the Act, the shareholders were never sure of the 4 p.ct. on the shares; but under the Act the Company were given a minimum of 5 p.ct., no matter how high the charge was, in order to pay this dividend. It was here where the public interest came in, and why the London County Council were so concerned. It was stated that there was only a difference of 2¼d. between the basic price and the selling price; but it must be remembered that 1d. per therm represented 5d. per 1000 c.ft., so that there was a margin at present between the basic price and the selling price of 1s. 0¼d. per 1000 c.ft. The view of the London County Council was that, unless the basic price and the selling price or costs were in close consonance, there might just as well be no basic price at all, so far as it provided an inducement to the Company to reduce the price of gas. Nobody would suggest that the Directors of the Company were not perfectly honest straightforward business men, who at all times were actuated by a desire to do the best for the consumer; but the point was that Parliament, in the Gas Regulation Act of 1920, had laid down a procedure for the revision of prices of all gas undertakings in the country. Why should not the South Metropolitan Gas Company come within this general Act? The present Committee had no evidence upon which they could fix a new price. All the Committee had got was that Dr. Carpenter had agreed that costs to-day were lower than they were in 1920; and Mr. Cash had said the same thing. Thus the Committee were unable to say that the present figure of 11d. was or was not sufficient. The London County Council were fighting for a principle—viz., revision by the Board of Trade. If the Council's clause was not inserted, he would ask that a clause be inserted which would bring the Company to Parliament at intervals, so that revisions could be made at the instance of either the Company or the Council. A period of ten years had been suggested by one of the members of the Committee. It was not in the public interest that this Company should be left absolutely without any provision for revision of its price; and the same would be said of any company, however good or capable its management.

At the conclusion of Mr. Abady's address, the Chairman gave the decision of the Committee which was recorded in last week's "JOURNAL"—namely, that the basic rate of 11d. was justified at the present time, but that an opportunity should be given for revision, if the circumstances warranted it, in 1935.

### Wednesday, May 13.

Sir LYNDEN MACASSEY, K.C., for the promoters, submitted the following clause, which, he said, gave effect to the Committee's decision as regards the basic price and revision. [The preamble of the Bill generally was found proved at the previous sitting of the Committee.]

(1) The Company shall, not later than in the session 1935, promote a Bill in Parliament giving an opportunity for the amount of the basic price prescribed by the South Metropolitan Gas Act of 1920 to be revised by such Bill.

(2) The London County Council and the Council of any Metropolitan Borough or Urban District within or partly within the limits of supply of the Company shall (subject to their complying with any relevant statutory requirements and Standing Orders of Parliament) be entitled to be heard before the Committee, to which any Bill promoted for the purpose aforesaid shall be referred, as to whether a new basic price should be substituted by such Bill for the basic price prescribed by the said Act of 1920.

Sir LYNDEN MACASSEY said that, by the terms of the clause, there would be no question as to the *locus* of the local authorities being challenged. They would be heard as to whether a new basic price should be substituted for the existing price of 11d. The clause had been submitted to the London County Council; but they had made no comments upon it, so he could only assume that they were keeping the way open for opposition in the next House, on principle.

The CHAIRMAN said the Committee would accept the clause, although they would like Sir Ernest Moon, K.C., the Speaker's Counsel, to examine it. If he proposed to make any modification, it would be communicated to the parties.

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The Parliamentary Committee of the London County Council, in a report presented for confirmation at the meeting of the Council yesterday, stated that the clause which has been inserted in the Company's Bill does not meet with the objections of the Council; and they have therefore given instructions for a petition against the Bill to be deposited in the House of Lords.

# MISCELLANEOUS NEWS.

## IMPERIAL CONTINENTAL GAS ASSOCIATION.

The Ordinary General Meeting of the Association was held last Wednesday, at the Cannon Street Hotel, E.C.—Sir CHARLES J. JESSEL, Bart., in the chair.

The SECRETARY (Mr. F. H. James) read the notice convening the meeting.

### THE REGISTER OF PROPRIETORS.

The CHAIRMAN: I now beg to move that the Common Seal be affixed to the Register of Proprietors.

The seal having been affixed,

The CHAIRMAN proceeded: I beg to move:

That the interim dividend at the rate of 5 p.ct., less tax, paid in respect of the half-year ended June 30, 1924, be hereby confirmed.

The DEPUTY-CHAIRMAN (Col. H. LeRoy-Lewis, C.B., C.M.G., D.S.O.) seconded the motion, which was unanimously agreed to.

The CHAIRMAN then called upon the Secretary to read the Auditors' certificate on the accounts submitted; and this having been done,

The CHAIRMAN proposed:

That the accounts for the year 1924 and the scheme prepared in accordance with the Companies' Clauses Consolidation Act, 1845, showing the profit available for the purposes of dividend, which the proprietors have before them in the form of the Profit and Loss Appropriation Acount, be taken as read.

### LOSS BY DEATH.

The CHAIRMAN: Ladies and gentlemen, I regret to have to begin my remarks to you this afternoon by referring to the gap that occurred in our Directorial ranks through the sudden death on June 26 last, of Mr. Hugh Goodwin Newton. Mr. Newton's family had long been connected with the Association. His father had been an Auditor from the early Sixties, was elected a Director in 1867, and was made Chairman of the Association during my first year of office in 1895. He served as Chairman until 1903, and died in 1906. He was succeeded by Mr. Hugh Newton, who therefore served the Association for no less than eighteen years. He was a useful Director, and we greatly deplore his very sudden death. In his place we have, as you see, elected Mr. George Jessel. I hope you will pardon the partiality of a parent if I say that we could not have done better. No doubt some of you will have read the interesting document referring to our centenary which was sent out to you with the accounts, and will have noticed that in the early years of the Association my son's great-great-grandfather was a Director, at the same time as his son (Sir Francis Goldsmid). So history, after a certain number of years, has repeated itself.

### THE ACCOUNTS.

Now I think I cannot do better than I have done in previous years—that is, take you through the accounts that are in your hands. On the right hand side of the profit and loss account, the first item is "net profit from stations, £174,943 10s. 9d." I should like to dwell on that item for a few minutes, because I have received two letters from proprietors who are somewhat anxious as to the future. They notice the item of "Revenue proportion of German compromise, £179,783 14s. 3d.;" and they have deducted this from the balance of profit on the left-hand side. The two gentlemen to whom I refer then proceed to ask: "How on earth are you going to continue in the future to pay 10 p.ct. dividend, if you only show about £50,000 profit"? I should like to draw your attention to the fact that on the debit side you will see "Income-tax and corporation profits tax. £119,103 13s. 4d." Of course that includes the income-tax on the revenue proportion of the German compromise, as well as the corporation tax, which will not appear in the accounts again. The combined amount is about £50,000. Then again, you will see an item "Exchange and contingency account, £14,000," which is by way of reserve. It is also to be remembered that the practice of this Association has always been, when we have had money to spare, to write down everything to what I may call absolutely ground-level. That is to say that, if there is any doubt in our minds, we write it down to the very smallest sum we can think of. The reason we do that is that we have to amortize all our assets abroad. It saves the amortization fund in years which may not be so prosperous. I do not for one moment wish to suggest that there is any magic about the 10 p.ct. dividend. No promises have ever been made by me, or by anybody else, that we are going to pay 10 p.ct. for the rest of our life as the Imperial Continental Gas Association; but what I think runs in the minds of these shareholders is that this Association has always been of a conservative character, and therefore we are not likely to pay a dividend of 10 p.ct. unless it is fairly assured for the future. Well, I can tell you that, as far as I can see, in spite of the many difficulties—particularly difficulties connected with exchange—which are obtaining abroad, I do not contemplate any trouble in maintaining this rate, at all events for the current year.

### DIVIDENDS ON INVESTMENTS.

"Dividends on investments, interest, discounts, &c., £125,168 11s. 3d.," you will see are lower than last year by £13,215. The reason for this is that 1923 included a little extra dividend that we received from the now-absorbed Lille Electricity Company. From this source we received in 1923 £6000 odd, which was for dividend during the war period. Then again, you must remember that we exchanged considerable amounts of Conversion Loan against debenture stock; and you will see the benefit of this on the other side, where, of course, the debenture stock interest is correspondingly decreased. I do not think I need dwell further upon that.

### THE GERMAN COMPROMISE.

The next thing I have to talk to you about is the revenue proportion of the German compromise. You will remember that we received on previous occasions, of the £1,600,000 which we were to get, all except £387,487 10s., which sum we received on May 1 of this year. Deducting the Clearing Office commission of £39,000, we have to account for £1,561,000; and the apportionment of this net sum is as follows:

| | |
|---|---|
| Capital accretion ... ... ... ... | £1,081,561 |
| Revenue ... ... ... ... ... | 479,439 |

Now before I go further into this, I think it will be as well to refer to another letter which I received from a shareholder. When in July last year we received a sum of money through the Clearing Office, this shareholder wrote to the office of the Association and asked why the money was not at once distributed. Well, the answer to this is that, under section 120 of the Companies' Clauses Consolidation Act we are not allowed to divide anything unless we submit to our shareholders a scheme of profits. Ten years ago, when I was a hot-headed youth of about 55, and when I was not even restrained by a Secretary who was then an impetuous young man of very nearly 60 years [Laughter], I proposed to you on two occasions to pass a dividend of 4½ p.ct.—that was during the war, and the money was very gratefully received by the shareholders. I then one day was approached by a shareholder, who almost threatened to prosecute me for having committed a crime against the Act of Parliament to which I have referred. Thereupon I had recourse to our legal adviser, who told me he was perfectly sure that I had committed a crime; and with a prospect of long lingering in gaol, I consulted him as to how I should get out of the difficulty. He said that the only way was to obtain an Act of Parliament condoning the offence. Well, we did get an Act of Parliament condoning this offence; but, of course, I was not going to expose my crime, and so we wrapped it up with other things which we thought necessary—such as having only one meeting in the year, &c. I think we are to be congratulated—myself, and the Secretary, and Messrs. Dyson (our Parliamentary Agents) on securing an Act of Parliament which has very much facilitated the distribution of the various sums which we received. To go on with my story, of the revenue proportion, £359,582 17s 10d. has been taken into general revenue up to Dec. 31, 1924, and utilized mainly for the general purposes of the business—*e.g.*, financing the considerable capital outlay at the stations. Towards the end of 1924, the sum of £142,922 was remitted out of these funds to cover part of the call on the Association's subscription to the new issue of shares of the Cie. Continentale du Gaz, Paris—a Company which offers good prospects of a profitable employment of the funds invested. This Company paid a dividend at the rate of 10 p.ct. in 1924, and shows every sign of maintaining that rate this year. The centenary bonus dividend, which, if approved by you to-day, will be paid on May 26, is made possible by the German compromise revenue. The balance on revenue account of £119,856 2s. 2d. will appear in the accounts of the present year, as the accounts for 1924 had been closed some time before it was definitely known if, and when, the final payment would be received. It must be borne in mind that the final revenue proportions will suffer deduction of income-tax at the rate in force at present. The capital accretion has been dealt with as follows:

| | | | | |
|---|---|---|---|---|
| Special dividend | June 15, 1923, 12 p.ct. . . | £237,113 | 7 | 8 |
| ,, | ,, May 20, 1924, 10 p.ct. . . | £197,600 | 0 | 0 |
| Proposed ,, | ,, May 26, 1925, 19½ p.ct. . . | £385,320 | 0 | 0 |
| | 41½ p.ct. . . | £820,033 | 7 | 8 |

Well, now, you would like to know, perhaps, what we intend to do with the balance. Some time ago—I will not say that I wrote an article—I inspired a paragraph that appeared in "The Times" with reference to what was going to be done; and I then was bold enough to say you were going to get 50 p.ct. as capital accretion; so this leaves another 8½ p.ct., or £107,960, to come next year—making a total of £987,993 7s. 8d. dealt with in this way, and leaving a balance to be carried forward for capital purposes of the business generally (and we urgently require it in the business) of £93,567 12s. 4d.

### A CLAIM FOR INTEREST.

Then I have something else to tell you of a pleasant nature. You will recollect that, at the last meeting, I informed you of the rejection by the Mixed Arbitral Tribunal of our claim for interest upon the German compromise owing to the lengthy delay in settlement. This year I am able to give you more satisfactory news. The British Clearing Office, who had urged this course upon us, and who have always been zealous in guarding the interests of the British claimants, felt that the principle at stake was too great to permit this rejection to be accepted without an attempt on their part to obtain what they considered, and what I consider, was only justice. They therefore entered into negotiations with the German authorities, and on Sept. 13 1924, an agreement in respect of the payment of interest was concluded. The Association is therefore the lucky recipient of a net sum of £62,332 19s. 6d. (after deduction of income-tax and commission) in respect of the claim rejected by the Mixed Arbitral Tribunal. [Applause.] Of course, any question about the disposal of this or any like sum will have to be left over to another year, therefore I do not think I need worry you any more on this subject now.

### PROFIT AND LOSS ACCOUNT.

Now I will return to the profit and loss account. You will see on the left-hand side Expenses in London, &c., show a reduction of more than £2000; and then comes the item of income-tax and corporation profits tax, which I have already referred to. Interest on debenture stock is, of course, down by £3156, and balances with the smaller amount of interest received on Conversion Loan stock on the other side. The general amortization account is up by £15,439. I shall just have to say a word about that, because one of the shareholders (he happens to be an eminent K.C.) wrote to me on the subject, and said: "I do not see why you should have any amortization fund at

all. Your capital is represented on the other side by investments; why make an amortization fund?" Now, having been responsible for a great many years for the financial policy pursued by the Board, I am rather touchy on the question of that policy; and I should like to explain once and for all that the policy of the Association for long past has remained the same—namely, that any asset which is in our hands should be kept going at a constant value. The moment it ceases to have that value, it should be written-down. Therefore if we have, as you know we have, leaseholds abroad, we must be prepared to replace these leaseholds in one way or another. This has been the fixed policy for a number of years; and I hope you will never think it necessary to question for a moment whether the capital is intact, or expect us to take into consideration what premium or discount our stock stands at. The amount appearing for legal charges is accounted for by a French case which arose when we had French stations of our own. This case goes back as far as 1906. They are even slower there than in England on the subject of taxation; for they have taken eighteen years in France to settle this question. We had at all events the interest on the money for this long period; and then when we had to pay it away, it was in francs, which were at that time 82 to the pound. Though the amount looked large in francs, when reduced to sterling it was not a matter of great consideration. The balance of profit for the year is £230,628.

### The Balance-Sheet.

With reference to the assets side of the balance-sheet, the item of "Works, mains, &c.," is £174,049 up, principally on account of the Brussels electricity extensions. Freehold land forming the sites of works is very different—£99,000, against £152,000. What has happened is that we had made a reserve for depreciation on account of this freehold land, but it appeared on the other side under sundry creditors; and we have thought it better to show what the real position is. Freehold land abroad has, in the currency of the respective countries, increased in value naturally, but it has not increased in value as much as the currency has gone down in terms of sterling. Therefore when we are presenting to you accounts which are rendered in sterling, we thought it better to have this item clearly set forth. There is an increase of £71,000 in stocks at stations. This applies really to all categories; but I am sorry to say there is one disquieting feature—and that is the large stock of coke at Antwerp, which we cannot dispose of. When I last heard of it, it was 22,000 tons; but I am glad to say it is not growing. This is a matter which, I think, affects nearly every gas company all over the world. There is an increase of cash; we happen to want a good deal more money abroad at the moment. The large reduction under sundry debtors is owing to the inclusion last year of £188,000 on account of the German compromise, which we had already received months before the meeting. You cannot, therefore, really compare the item with this year. We also received a sum of money from the Cie. Continentale du Gaz. I need not dwell at this point on the item "German Compromise." Loans to foreign gas and electricity companies are smaller, because the Central Gas Company of Hungary repaid some of their loan in 1924, and wiped off the balance this year. The decrease in freehold property in London and abroad is also attributable to the same reasons that I have already set forth under Freehold Land. This, of course, deals with the property which is not actually the site of works—such as offices, and perhaps engineers' houses, and other places, and also our offices in London. The reserve fund investment is altered because we converted our 5 p.ct. War Loan into 4½ p.ct. Conversion Loan. Our pension fund shows no change. English, Colonial, and Indian securities are up by £181,181, because we have made a temporary investment of £200,000 in Treasury Bonds. It is money we shall probably have to deal with next year, when we pay you the final dividend on the German compromise. Next come foreign gas and electricity companies. Here there is an increase of a considerable sum, owing to the investment we have made in the Cie. Continentale du Gaz. They doubled their capital, and called up 25 p.ct., and also a premium of 50 frs. per share. This cost us £178,224. It may interest you to learn what the effect of the exchange is on this Association. In 1924 we had an interim dividend of 6 p.ct. on our holding in the Cie. Continentale du Gaz, which produced 2,589,840 frs., and this translated into sterling amounted to £34,198. In November and December of last year we invested, as I have said, in this Company a further 15,285,550 frs. (£178,224); and the interim dividend in April of this year, which was at the same rate of 6 p.ct., in spite of this additional £178,224 invested, produced only £35,750 (3,244,935 frs.), or about £1600 more than before we put this large further sum into the undertaking. The reason for this is very easily explained. When the dividend came over in 1924, the franc was worth 73 to the pound; whereas in 1925, it was about 20 frs. to the pound more. That will give you a very good illustration of what the depreciation of the franc means to an Association like this. As to the item of "miscellaneous foreign securities," on account of the Belgian law we had slightly to increase our holding there by buying Treasury Bonds, because of their Accident Insurance Laws. On the other side, I have already explained about the debenture stock. Regarding the item of "Sundry stockholders, amounts unclaimed, account reduction of capital," there are a few people who are kind enough still to leave their money with us, instead of taking it. Nothing else calls for mention until we reach the general amortization fund. That is up by £56,836. As I have shown you, there is £59,491 to be put into it, and a few thousands to be taken out on account of the liquidation of Bruex, which I referred to on the last occasion. Sundry creditors are up, because £33,748 more is due to contractors. The item "Commissioners of Inland Revenue" is beyond regret. The renewals fund was drawn upon on account of the liquidation of Bruex, and also to a small extent because of plant that had been scrapped.

### Profit and Loss Balance.

Lastly we come to the profit and loss balance, after deduction of interim dividend, available for appropriation. The balance brought from last account was £45,951 6s., and the profit for the year 1924 £230,628 4s. 1d.—making a total of £276,579 10s. 1d. Deducting the 5 p.ct. interim dividend paid in November last, £76,570 12s. 9d., there is a balance available for appropriation of £200,008 17s. 4d. To pay the proposed 5 p.ct. final ordinary and 5 p.ct. centenary bonus dividends, an appropriation of £153,141 5s. 6d. will be required, leaving a carry forward of £46,867 11s. 10d.

### The Work of the Staff.

I need not, of course, say that, as usual, I shall be very pleased to answer any questions that shareholders may wish to ask me; and I do not think I should sit down without referring again this year to the wonderful services which have been rendered to us by our staff both at home and abroad. I can only thank them, in the names of myself and of my colleagues, for the good work they have done. [Applause.] I would like to make a special reference to the work of Mr. J. G. Van Niftrik, the Manager at Flushing, the great value of which may be calculated from the fact that the increase in the gas consumption at his station represents an advance of 55 p.ct. as compared with 1913. Mr. Van Niftrik has now retired from the managership at Flushing owing to advancing years, and I am sure he will carry with him your good wishes. He had been with us 35 years, and had been the Association's Manager at Flushing since June, 1889. In accordance with the Association's practice he has been granted a pension. He has been succeeded by Mr. J. J. Van der Jagt, his chief assistant, who has been in the Association's service since November, 1908. There is one other matter to which I should like to allude while I am speaking, and that is the resolution which is going to be proposed later on by a proprietor who has given notice to that effect. The genesis of the motion is that I was approached indirectly by one of the largest proprietors—if not the largest proprietor—in this Association, and was asked whether I did not wish the usual course to be pursued of rewarding the Directors with something on the occasion of the centenary of the Association. Probably this is news to my colleagues; but I do not mind saying now that I declined, on behalf of myself and the Board, without consulting them, to have any such proposal made. At the same time, I pointed out another direction in which something might be done. Of course, we have full scope with regard to our existing staff and their wives. We have a liberal pension fund, and we help them when they are sick and sorry; but there are other occasions you can very easily imagine that arise. For instance there might be a man with a moderate salary who perhaps had not "cut his coat according to his cloth," and had a somewhat larger family than he ought to have had considering his means. Such a man might find that a little assistance towards the education of his youngest daughter or his eldest son would be of great value to him; but we, having no precedent, and no wish, to go outside our usual scheme of gratuities or pensions for sickness, have naturally to refuse to assist in these cases. Therefore I said: "If you wish to do anything to mark appreciation of the services of the Directors and the staff during this long period of a hundred years, I think that if a proposal were made to place a modest sum"—I did not wish to frighten proprietors by mentioning too large an amount—"at the disposal of the Board for this purpose, it would be practically certain to receive the assent of the shareholders." ["Hear, hear."]

### The Dividends.

I have now to move:

> That the sum of £388,903 8s. 1d. received from the realization of the German assets, being an accretion to capital which has been realized and turned into money, be dealt with as profit and applied in payment of a special dividend for the year 1924, at the rate of 19½ p.ct. per annum on the nominal amount of the issued capital stock of the Association, such dividend to be paid on the 26th of May, 1925, upon the holdings of capital stock as registered in the books of the Association on the 27th of April, 1925.

The Deputy-Chairman: I beg to second that.

The motion was put to the meeting, and carried unanimously, without discussion.

The Chairman: I next have to move:

> That upon the holdings of capital stock as registered in the books of the Association on the 27th of April, 1925, there be also paid on the 26th of May, 1925, less income-tax at 4s. 6d. in the pound—
>
> (*a*) A final ordinary dividend for the year ended the 31st of December, 1924, at the rate of 5 p.ct. (actual), making with the interim dividend of 5 p.ct. (actual) paid in November, 1924, a dividend of 10 p.ct. for the year.
>
> (*b*) A special bonus dividend, in celebration of the Association's centenary, at the rate of 5 p.ct. (actual),
>
> Leaving £46,867 11s. 10d. to be carried forward to the next account.

The Deputy-Chairman seconded this, and it was agreed to.

The Chairman: Now I have to move:

> That the accounts, together with the scheme for the appropriation of the profits, which have been submitted, be received, adopted, and entered upon the minutes.

The Deputy-Chairman seconded this, and it was carried.

### A Memorial of Gratitude.

Mr. H. E. West: I have much pleasure in moving the next resolution. The usual notice has been given, and I have reason to believe that it will prove acceptable to the shareholders. You will appreciate the Chairman's unselfishness in deciding that, if any money were voted, it should be devoted to the staff, and not to the Board. Few companies are spared to celebrate their centenaries, and the record of this Association is, I believe, unique. This record is the result of an able and far-seeing policy on the part of the Board, helped by a capable and loyal staff. I beg to move:

> That a sum of £2000 be placed at the disposal of the Board to be utilized for the permanent endowment of such philanthropic object as they may select having as its primary object the extension of assistance to deserving cases occurring among the families of employees of the Association; the said endowment

to be an abiding memorial of the proprietors' gratitude to the Directors, past and present, for the valuable services rendered by them to the Association during the period 1824 to 1924.

Sir LUCAS RALLI: I have much pleasure in seconding that.

Mr. FRED. TOMKINSON: I wish to support this resolution, and also to express my thanks for the extremely able speech we have had from the Chair. I think we owe a deep debt of gratitude to the Directors for the work they have done during the past year. My main object in rising, however, is to refer to the excellent booklet entitled "The Centenary of the Imperial Continental Gas Association" which was sent out with the report and accounts. It shows the very remarkable result of the hundred years' work; and I would like to thank the Board for giving us so charming a memento of the occasion.

The resolution was passed with acclamation.

RE-ELECTIONS.

The CHAIRMAN: I beg to move the re-election of the following Directors, who are all old and tried administrators of the Association. Col. H. LeRoy-Lewis, C.B., C.M.G., D.S.O.; Mr. R. W. Wilson; and the Rt. Hon. Sir Guy D. A. Fleetwood Wilson, G.C.I.E., K.C.B., K.C.M.G.

Mr. H. G. PALMER seconded the motion, which was unanimously agreed to.

Mr. C. F. Dendy Marshall, M.A., was re-elected an Auditor of the Association, on the proposition of Mr. PERCY DE WORMS, seconded by Sir LUCAS RALLI.

A vote of thanks to the Chairman and Directors, proposed by Mr. TOMKINSON, was carried with applause, and suitably acknowledged by the CHAIRMAN.

NOTE.—It is of interest to record that at this meeting in the centenary year there were present three direct descendants of the original founders of the Association—*i.e.*, Mr. Harold Godfrey Palmer, Mr. George Jessel, M.C., and the Reverend Canon Attwood.

## BRENTFORD GAS COMPANY'S STANDARD PRICE.

The Public Control Committee of the London County Council, reporting that the Board of Trade have issued an Order providing that, as from April 7, the standard price of the Brentford Gas Company is to be reduced from 17·8d. to 14d. per therm, point out that this decision is the mean of the Company's and the Council's estimates. The effect of the award on the authorized dividends payable by the Company is shown below:

| — | "A" Consolidated Stock. | "B" Consolidated Stock. |
|---|---|---|
| Amount of stock | £992,045 | £990,500 |
| Standard rate of dividend | 4 p.ct. | 3½ p.ct. |
| Rate of dividend authorized and paid in 1914 | £5 14s. p.ct. | £5 12s. 6d. p.ct. |
| Rate of dividend for 1924: | | |
| Authorized | £8 p.ct. | £8 10s. p.ct. |
| Paid | £6 2s. p.ct. | £6 2s. 6d. p.ct. |
| Maximum rate of dividend payable under Board of Trade's award at present price of gas (9·8d. a therm) | £6 2s. p.ct. | £6 2s. 6d. p.ct. |

It will, they add, be seen that the new standard price will allow the payment of dividends substantially greater than those authorized before the war, assuming that the actual price charged will remain at 9·8d. a therm. It must be remembered, however, that the shareholders are entitled to additional dividend in respect of their share of any savings effected by the Company by good management. If the Company's estimate of 0·36d. a therm as the equivalent of such savings is correct, the corresponding increase of dividend to which the shareholders are entitled in this respect may be put at 4s. p.ct. on the "A" stock and 5s. p.ct. on the "B" stock.

## STAFFORD GAS UNDERTAKING.

The report of the Stafford Gas Committee for the year to March 31 shows a gross profit of £13,743, which leaves an available profit of £1175. The gas made amounted to 325 million c.ft.—a slight increase on the make for the previous year.

Alderman YOUNG (Chairman of the Committee), in moving the adoption of the report, drew attention to the fact that the price of gas had been reduced on two occasions during the year. The low prices at present charged, he suggested, would assist in developing the town. The Committee and Council were to be congratulated on having such an asset in their well-managed undertaking. Since Mr. Poulson had been in charge, the results had been excellent, and improved as time went by.

Alderman WESTHEAD seconded, and emphasized that more gas had been supplied to the consumers during the year, in consequence of the reduction in price.

**Synthetic Ammonia.**—The recent announcement of a guarantee of £2,000,000 under the Trades Facilities Act as new capital for Synthetic Ammonia and Nitrates, Ltd., indicates great expansion of the undertaking, set up at Billingham, near Stockton-on-Tees, by a subsidiary company of Messrs. Brunner, Mond, & Co., for making ammonia from atmospheric nitrogen. The works at Billingham will be extended to four or five times their present size; and the output, restricted at present to 120 tons of sulphate of ammonia per day, will approach 800 tons daily.

## NOTTINGHAM GAS PROFITS.

### £88,545 Last Year.

The annual report of the Nottingham Corporation Gas Committee for the period ended March 31 shows that the undertaking is enabled to contribute £25,000 in relief of municipal burdens.

In contrast with the record for remunerative results, which was established in 1923, when the profits totalled £181,367, and also in comparison with those of 1924, which aggregated £165,502, the amount now available is £88,545. But, as Sir Albert Ball (Chairman of the Committee) observed, in moving the adoption of the report by the Council, it is a cause for satisfaction that the undertaking has done so well in a period which has been beset with difficulties. He referred to the shrinkage of residual prices, the most salient example of which was that the income from tar products had gone down by £28,053.

The Committee's report, which was adopted, afforded much interesting information indicative of continued effective management. The income last year amounted to £645,204, and the expenditure to £556,659, leaving a balance of £88,545 to be carried to the profit and loss account. To this balance is added £3572, representing bank interest and interest on revenue account investment, together with £50,208 brought forward from last year. After charging interest on capital, contributions to sinking funds, and £15,000 for depreciation of mains, meters, and stoves, there remains an available balance of £62,441. The Committee, having decided to allocate £25,000 as a contribution in aid of the general district rate, recommended that the balance of £37,441 be carried forward. A considerable tonnage of coal has still to be taken under the contracts, and the prices payable thereon will, it is pointed out, have a material effect upon the accounts for next year. New contracts are being made for a limited tonnage at lower prices, but, even now, the Committee observe that gas coals are not purchasable on the same terms as other industrial coals; the lower prices for industrial fuels being due entirely to the general depression in trade. The average price paid for coal, 24s. 1·33d. per ton, showed an increase of 7·53d. per ton on the previous year. The average price paid for the year ended March, 1914, was 11s. 5·55d. per ton.

The Committee, for some considerable time past, have been of opinion that the period would arrive when abnormally high prices for coal, materials, and labour would coincide with a severe depression in the markets for residuals. Unfortunately this period has now arrived, and the Committee consider it necessary to inform the Council that an increase in the price of gas cannot be avoided if the present conditions continue for an extended period. However, having regard to the severe depression prevailing in industry, the Committee do not recommend any increase in the charges for gas, advising that the existing scale shall remain in operation for the time being, even if, in so doing, an actual trading loss is made.

The quantity of gas sold during the past year in Nottingham and district was 2,571,307,200 c.ft. (12,213,709 therms), compared with 2,560,574,300 c.ft. (12,162,728 therms) for the previous year—an increase of 10,732,900 c.ft. (50,981 therms). The quantity of gas sold per ton of coal carbonized was 12,704 c.ft. (60·3 therms), as compared with 13,128 c.ft. (62·3 therms) last year. The decrease is due to the extended use of local coals and a slight improvement of the calorific value of the gas supplied.

The following figures show the difference between present-day and pre-war costs in relation to the undertaking:

| Year Ended | Gas Sold (C.Ft.). | Total Expenditure. £ |
|---|---|---|
| March, 1925 | 2,571,307,200 | 556,660 |
| March, 1914 | 2,251,302,700 | 250,995 |
| Increase | 320,004,500 | 305,665 |

It is pointed out by the Committee that the expenditure per million cubic feet of gas sold has therefore increased from £111 9s. 9d. for the year ended March, 1914, to £216 9s. 9d. for the year ended March last—an increase of 94 p.ct. The following are the comparable receipts for gas per 1000 c.ft. sold for the same periods:

| | s. | d. |
|---|---|---|
| March, 1925 | 3 | 5·30 |
| March, 1914 | 2 | 5·17 |
| an increase of | 1 | 0·13, or 41·58 p.ct. |

MR. JOHN WILKINSON'S REPORT.

In his fourteenth annual report, Mr. John Wilkinson (the Engineer and Manager) affords the information that during the period under review 196,198 tons of coal and 133,723 gallons of oil were utilized in course of manufacturing:

| | C.Ft. | Therms. |
|---|---|---|
| Coal gas | 2,588,362,000 | 12,317,461 |
| Water gas | 81,843,000 | 390,016 |
| Total | 2,670,205,000 | 12,707,477 |

The gas unaccounted-for during the year was 98,897,800 c.ft. (493,768 therms), or 3·70 p.ct., as compared with 3·69 p.ct. for the previous year.

**Montevideo Gas and Dry Dock Company, Ltd.**—At the meeting next Wednesday (May 27) the Directors will report that, after providing for interest on debenture stock and other charges, and including £14,491 brought forward from the previous year, the balance at the credit of profit and loss available for dividend is £36,074. A dividend of 2 p.ct., free of income-tax, is recommended, making, with the interim distribution, a dividend of 4 p.ct., free of income-tax, for the year. This will leave a balance to be carried forward of £14,397. Compared with the previous year, the total sales of gas show an increase of 8½ p.ct. The extension of the manufacturing plant has been continued, and enlargement of many of the mains is in progress.

## CITY AND GUILDS OF LONDON INSTITUTE.

The following questions were set in the City and Guilds of London Institute Examinations in the subjects named:

### GAS-WORKS PRACTICE.

#### Grade I.

*(Not more than eight questions to be attempted. The maximum number of marks obtainable is affixed to each question.)*

1. Sketch and describe the producer used for heating a regenerative setting of horizontal retorts. (45.)
2. Describe, with the aid of sketches, how the gas passes from the retort to the foul main. (45.)
3. Describe the operation of clinkering the producer of a retort setting. (35.)
4. Sketch and describe one form of apparatus for removing traces of tar from the gas after it leaves the condenser. (35.)
5. What impurities are present in the crude gas after it leaves the condenser, and how are they removed? (35.)
6. Give a sectional sketch of an oxide purifier, and explain the chemical action in the purifier and during the revivification of the oxide. (35.)
7. Describe an apparatus for ascertaining (*a*) the specific gravity, and (*b*) the calorific value, of coal gas. (35.)
8. Sketch and describe the apparatus used for making carburetted water gas. (35.)
9. Describe, with the aid of sketches, the following parts of a gas-holder: (*a*) Top curb, (*b*) vertical stays, (*c*) cup and dip, (*d*) bottom curb, (*e*) inlet and outlet pipes. (30.)
10. What is the function of the station governor? Explain its construction and working. (30.)

#### Final Examination.

*(Not more than eight questions to be attempted. The maximum number of marks obtainable is affixed to each question.)*

1. Sketch a cross-section of a modern retort house equipped with regenerative retort settings, stoking machinery, and coal and coke handling plant, describing briefly the various apparatus used. (45.)
2. Sketch and describe a blue water gas plant fitted with waste-heat boiler. (35.)
3. Describe the method of starting-up a carburetted water gas plant from cold. (35.)
4. Discuss the probable composition of coal gas having a calorific value of 560 B.Th.U., and how it would be modified by the addition of 25 p.ct. of blue water gas. (45.)
5. Describe the construction and working of a sulphate of ammonia plant, making special mention of the working conditions of the saturator. (35.)
6. Describe the methods of sampling and testing the producer gas and waste gases of a regenerative retort setting. (35.)
7. Describe, with the aid of sketches, a modern coke breaking and screening plant. (35.)
8. Discuss briefly the test used for chemical control in a gas-works. (35.)
9. Prepare a skeleton specification for a tank 60 ft. diameter by 25 ft. deep, suitable for storing oil for the manufacture of carburetted water gas. (30.)
10. Describe the apparatus used for determining the composition of illuminating gas. (30.)

### GAS SUPPLY PRACTICE.

Chief Examiner: Mr. H. Kendrick.

#### Grade I.

*(Not more than eight questions to be attempted. The maximum number of marks obtainable is affixed to each question.)*

1. State fully the comparative advantages and disadvantages of cast iron, wrought iron, and steel for street mains and services. For what pressures is each most suitable? (30.)
2. Describe fully the operation of temporarily stopping a leakage in a 6-in. main. How would you deal permanently with a split main, a split socket, and a main broken completely round? Give sketches in each case. (35.)
3. (*a*) How does temperature and atmospheric pressure affect unaccounted-for gas? What other factors influence the volume of gas paid for, as compared with the volume of gas made. (30.)

*or*

(*b*) Describe and sketch the following: (i.) A ratchet stock, (ii.) an anti-pulsator, (iii.) a thermostat, (iv.) a gas-main expansion joint. (30.)

4. Sketch and describe an efficient street lamp governor. How may unsatisfactory governors affect the efficiency of inverted burners? (35.)
5. (*a*) What are the chief factors to be allowed for when fixing the diameter of pipes for internal fitting work? State the maximum allowable cubic feet of gas per hour, and the maximum length advisable in gas fitting work for ⅜-in., ½-in., ¾-in., and 1-in. lead, compo, and iron piping. (40.)

*or*

(*b*) How may very small leakages be shown in interior fitting work? Sketch in detail the apparatus you would use, and state how you would locate such a leakage in a confined space. (30.)

6. What appliances are required for the official testing of meters? State in general terms the regulations under which these tests are made. What are the limits of error allowed? (30.)
7. How would you prove that the pressure of gas at a meter outlet is adequate for the requirements of a particular consumer?

What is the minimum pressure allowed by the Gas Regulation Act? Where should this be ascertained? Is this pressure adequate for the needs of the average consumer? If not, what pressure is desirable to ensure the best results for lighting and heating? (30.)

8. Sketch and describe the working and construction of a dry gas meter. What are the chief parts upon which the accuracy of registration depends, and the parts that affect the gas pressure if the meter is overworked? (40.)
9. (*a*) Why do oven burners sometimes "smother out"? Can this be prevented? What means would you employ for ascertaining whether the ventilation of the oven was deficient or excessive? (30.)

*or*

(*b*) Describe fully the cycle of operations in the cylinder of an "Otto" type gas engine. If a gas engine slowed down and finally stopped, how would you locate the fault or faults, and then remedy them? (40.)

10. (*a*) Explain with sketches the correct form of bunsen flame for (i.) a "C" burner, (ii.) an inverted burner, (iii.) a gas fire. What alterations, if any, would be necessary to maintain the same maximum efficiency when consuming horizontal straight coal gas, vertical gas, and mixed gases, each of 480 B.Th.U. calorific value? (40.)

*or*

(*b*) During the war, various devices were used in connection with the burners of cookers already installed, to overcome the tendency to light back. Describe and sketch two of these. How did they effect the desired object? Would they be useful in present circumstances, and, if so, why? (35.)

11. (*a*) A consumer complains that his gas fire does not give sufficient heat, and an objectionable smell is given off from the gas iron when first lighted. What are the probable causes and remedies for the complaints? (35.)

*or*

(*b*) Describe and sketch the operation of tapping and connecting a service pipe to a steel main. What precautions have to be taken to prevent damage to the main pipe during the work and after it is completed? (30.)

#### Final Examination.

*(Not more than eight questions to be attempted. The maximum number of marks obtainable is affixed to each question.)*

1. State in general terms the regulations governing the powers of authorized and unauthorized gas undertakings to break up dedicated and undedicated streets for the purpose of laying mains. (40.)
2. An 8-in. diameter main is increased in length from 1200 yards to 3600 yards. To what must the initial pressure of 2 in. be increased to ensure the same discharge of gas? Upon what formula is the answer based? (30.)
3. (*a*) Describe and sketch an apparatus for reinforcing the general supply of gas in a low-lying district where the consumption is mainly domestic. Is it necessary to work the plant continuously over the 24 hours? Sketch 24-hour charts of the booster outlet pressures for a mid-summer and a mid-winter day for an area as above stated. (35.)

*or*

(*b*) A railway company has demanded that gas undertakings on its system shall fix by-passes to meters supplying its goods yards and junctions, which are to be opened should the meters break down. Why is this undesirable from the gas undertakings' point of view? Could not the feared difficulty be met in a manner less open to objection? (40.)

4. (*a*) How do the regulations for testing meters differ under the Gas Regulation Act, 1920, and under the Sales of Gas Act, 1859? In what way are the new regulations to the advantage of the gas undertakings and the consumer? (30.)

*or*

(*b*) A bridge of 60 ft. span has been constructed over a river. The roadway is carried on box girders 3 ft. 6 in. deep and 6 ft. centre to centre; the floor being formed of reinforced concrete slabs, leaving 18 in. between the bed and the flags forming the footway. The roadway rises 1 in 10 to the bridge on both sides. Show in detail two methods by which you would carry a 24-in. diameter main across the bridge, and how you would provide for contraction and expansion. (40.)

5. (*a*) What precautions are necessary when fixing and adjusting pneumatic switches in order to ensure satisfactory results? Describe how you would carry out an installation in a cinema, and what provision you would make to prevent extinguishing of the by-passes. (30.)

*or*

(*b*) What does "co-efficient of friction" mean? What was Dr. Pole's constant? Is this correct? If not, state the variations for 2-in., 6-in., 12-in., and 24-in. diameter cast-iron mains. (35.)

6. (*a*) State the methods that you would adopt to revive (i.) a man who had been badly gassed by inhaling straight coal gas, and (ii.) a man who had been badly gassed by inhaling a mixed gas containing 30 p.ct. of water gas. (30.)

*or*

(*b*) Discuss the relative merits of compression of (i.) gas, (ii.) gas and air, (iii.) air only, in high-pressure lighting and furnace work. (30.)

7. (*a*) State what you know about bread and biscuit baking by gas. What are the relative costs for fuel and labour in a large and in a small installation when using gas and solid fuels? (40.)

*or*

(*b*) Sketch and describe a regenerative oven furnace for hardening, reheating, and annealing steel castings. State the average consumption of gas per cwt. of steel, and its economy in costs over solid fuel when used for annealing, exclusive of the fuel used for the primary heating of the furnaces. (35.)

8. (*a*) Sketch and describe a Spencer-Bonecourt boiler capable of evaporating 700 lbs. of steam per hour from 212° Fahr. How

does chimney draught affect the production of steam? What are the comparative costs of raising steam by this type of boiler and by Lancashire boilers, taking into consideration capital, fuel, labour costs, and repairs? (40.)

*or*

(b) What are the advantages and disadvantages of flue pipes used in conjunction with gas cooking stoves?

Some recent tests of gas fires referred to during the Smoke Abatement Exhibition in Manchester last autumn showed the presence of carbon monoxide in the flue gases. Would this be dangerous to health? Discuss these statements. (35.)

9. The ordinary type of multiple nipple burner for street lighting has a group of small mantles set in more or less circular form. Does this ensure even lighting along and across a narrow street? Give a detailed sketch and description of a burner now on the market that is an improvement on this general design and lighting effect. (30.)

10. (a) State what you consider to be the chief advances in gas-fire construction during the past ten years, as shown by the designs submitted by the makers, and mention the causes which have led to the improvements enumerated. (35.)

*or*

(b) What purposes do indicator diagrams serve in gas engine practice. Sketch such diagrams, and explain the effect on the respective curves of (i.) a choked exhaust pipe, (ii.) too small a supply of air, (iii.) the pre-ignition of the mixture. (35.)

11. (a) How may the variations of flame temperature be measured? State briefly a method of estimating radiant energy from a gas fire. (30.)

*or*

(b) What proportion of light rays from an inverted burner are radiated above the horizontal; and how is this ascertained?

What means are adopted in the construction of street lanterns for ensuring the greatest efficiency and evenness of lighting on the road surface? (30.)

## LIGHTING OF LONDON SCHOOLS.

On the annual estimates for fuel, gas, electricity, and water, £193,050, and for building work not chargeable to capital account, £102,000, being submitted at last week's meeting of the London County Council, Mr. C. E. GIBBINGS moved that it be referred to the Finance and Education Committees to consider and report as to the preparation of a supplemental estimate of £1000 with a view to securing improved lighting at certain schools. In moving the amendment, he drew attention to the inefficient lighting of some of the old schools in Southwark, and said that in certain rooms there were 16 to 20 burners that were put there 20 or 30 years ago. As a business proposition it would be quite right for the Council to have these things altered, in order to give a much better light. In the lighting bill alone it would save about 50 p.ct.

Mr. HERBERT MORRISON, seconding, thought the day was not far distant when no more gas lighting would be left in London schools. The present lighting of schools was disgraceful, and had a bad effect upon the health of children, teachers, and other people using the buildings. The Council might be able to obtain very favourable terms from municipal electricity undertakings for the installation of electricity in place of gas in the schools, if they could offer those undertakings an increased load for other purposes—such as electric cookers.

Mrs. WILTON PHIPPS (the Chairman of the Education Committee) refused to accept the amendment, on the ground that the Committee had sufficient money at their disposal to carry out any improvements necessary. She agreed that the lighting of some of the schools was very bad. The question was under the consideration of the Buildings Sub-Committee; and she was very anxious that the illumination should be improved. In the case of the old schools, she was afraid the substitution of electricity for gas would be a slow process; but in the new schools electricity would certainly be used.

The amendment was defeated by 69 votes to 28, and the estimate adopted.

## GAS SUPPLY IN SINGAPORE.

The report for 1924 of the Municipality of Singapore Gas Department will be the last to bear the signature of Mr. J. P. Hallaway as Gas Engineer; for he retired in February from the position, which he had held for 23 years, and has been succeeded by Mr. F. Bedford, who was appointed Assistant Gas Engineer in 1922. In Mr. Bedford the Commissioners will, Mr. Hallaway says, "have a very experienced and hard-working officer, who can be depended upon to further their interests and the development of the Gas Department."

The report shows that the quantity of gas manufactured in 1924 was 271,845,000 c.ft. (including 39,526,000 c.ft. of water gas), which compares with 267,970,000 c.ft. for 1923, an increase of 1·4 p.ct. Of the output, 30·8 p.ct. was used for public lighting. To private consumers 3·6 p.ct. more gas was sold than in 1923; and the number of consumers increased by 105 during the year. The number of cooking, water heating, and other appliances fixed on hire grows satisfactorily; and Mr. Hallaway is of opinion that the use of gas for these purposes, as well as for industrial operations, will rapidly increase. The amount of gas accounted for was 12,801 c.ft. per ton of coal, against 11,758 c.ft. for 1923. A very satisfactory reduction was accomplished during the year in the proportion of unaccounted-for gas; the figures being 10·7 p.ct. in 1923, and 7·5 p.ct. for 1924.

When Mr. Hallaway took charge in 1902, the make of gas per annum was 44,659,000 c.ft.

The Bradford Corporation Gas Committee have allocated £10 for local prizes in connection with the usual "Fairy Gas" competition organized among school children by the "B.C.G.A."

## THE SMOKE NUISANCE.

Dealing with the question of smoke and atmospheric pollution, a table is given in the report of the Medical Officer of Health for the City of London for 1924 showing the rainfall from January to December and the amounts of insoluble matter—tar, soot, and dust—found, also the soluble matter, together with the sulphates, ammonia, and chlorine in the volume collected. A comparison is made with Lambeth (Archbishop Park); and only in May and December did the solids at Lambeth exceed those in the City. It is pointed out that, in July only, the deposit registered as falling in the City amounted to 20·96 tons per square kilometre, which is equal (estimating the City as having an area of one square mile) to no less than about 53·6 tons. Of this mass of dirt, approximately 24·9 tons were soluble, and included the chemicals mentioned, and 28·7 tons were insoluble, and consisted of tar, carbon, and grit.

In addition a daily observation had been made at mid-day at the Guildhall of the purity of the air by a modern dry method, by which the suspended matter could be readily demonstrated. From Jan. 1 until Dec. 31 the amount of the impurity at noon had varied from half a milligramme to six milligrammes per cubic metre of air; this latter figure including times of fog.

Commenting on this, the Medical Officer adds: "For many years past it has been increasingly obvious that the use of electricity and gas for heating and cooking purposes is contributing to the diminution of the nuisance from smoke. The cost of electricity is still far too great for its general use, but I believe the substitution of gas for coal and coke in restaurants and business premises is practicable, and might be more generally adopted if the gas companies encouraged its greater use, possibly to their own profit, and certainly to the advantage of the populace, by arranging a special rate for the supply to premises of the class indicated. Were such special terms for gas as those suggested arranged, I am of opinion that the increased purity of our atmosphere, as would be observed by City workers, would be so marked that an agitation against the unnecessary use of common coal would result, and public opinion might even extend to statutory prohibition being enforced."

## CURRENT SALES OF GAS PRODUCTS.

### The London Market for Tar, Tar Products, and Sulphate.

LONDON, *May* 18.

Pitch continues nominal at about 41s. to 42s. per ton.

Attention is now concentrated on tar for road work, and considerable quantities are being delivered.

Creosote is displaying a slightly firmer tendency at about 7d. to 7½d. per gallon net and naked at makers' works.

Solvent naphtha is in good demand and scarce at about 1s. 8d. to 1s. 9d. per gallon for 95-160 quality.

Pure benzole and pure tuluole are about 2s. per gallon.

### Tar Products in the Provinces.

*May* 18.

The markets for tar products are practically unchanged.

In pitch there is little or no business now doing for prompt delivery. It is probable that the present spell of hot weather will definitely stop any further purchases being made for delivery this season, and it may be that it will result in some quantity sold for delivery this season being carried forward to next. As regards next season, some business has been done on the East Coast at 41s. a ton f.o.b., and in London at 41s. 6d. to 42s. Reports from the Continent are to the effect that considerable quantities of continental pitch have been sold for next season at prices which at to-day's rate of exchange certainly do not amount to more than 40s. f.o.b. England. Some business is reported to have been done on the Continent in British pitch at 42s. and 42s. 6d. a ton f.o.b.

Creosote oil is quiet in the absence of any foreign demand. It is known, however, that little or no business has been done for July-December. A considerable quantity has to be purchased, as stocks on this side are quite small. Present prices should be maintained, or even some improvement effected. In the meantime, small quantities have been sold at rather less than the figures which have been recently ruling.

White products are steady. As usual, there is a very good demand for benzole for motor purposes, while solvent naphtha is in increased demand owing to the activities of the rubber trade. Both crude carbolic and cresylic are neglected, while naphthalene is almost unsaleable.

The average values for gas-works products during last week were: Gas-works coal-tar, 27s. to 32s. Pitch, East Coast, 40s. 6d. to 41s. 6d. f.o.b. West Coast—Manchester, 35s. to 36s.; Liverpool, 36s. to 37s.; Clyde, 39s. to 40s. Benzole, 90 p.ct., North, 1s. 7½d. to 1s. 8½d.; crude, 65 p.ct., at 120° C., 11d. to 1s. 1d., naked at makers' works; 50-90 p.ct., naked, North, 1s. 7½d. to 1s. 8½d. Toluole, naked, North, 1s. 6½d. to 1s. 7½d., nominal. Coal-tar crude naphtha, in bulk, North, 7½d. to 8½d. Solvent naphtha, naked, North, 1s. 5d. to 1s. 6d. Heavy naphtha, North, 1s. to 1s. 2d. Creosote, in bulk, North, liquid, 5⅝d. to 6½d.; salty, 5½d. to 6d.; Scotland, 5½d. to 5⅞d. Heavy oils, in bulk, North, 6½d. to 7d. Carbolic acid, 1s. 5d. to 1s. 6d. prompt. Naphthalene, £11 to £14; salts, £4 to £5, bags included. Anthracene, "A" quality, 2½d. per minimum 40 p.ct., purely nominal; "B" unsaleable.

**Cape Town and District Gas Company.**—At to-day's meeting of the Cape Town and District Gas Light and Coke Company, Ltd., satisfactory progress will be reported. A final dividend will be recommended on the ordinary shares of 4 p.ct., making 7 p.ct. for the year; and this will leave £3820 to be carried forward.

## NORTH-EAST COAST COAL TRADE.

**From our Own Correspondent.**

Apart from a rather steadier position in Northumberland steams, there is little of interest to report from the Newcastle market. Durham coals are, if anything, rather weaker, and the demand shows no signs of improving. It is reported this week that unsold stocks in Germany amount to eight million tons, and pressure by some of the banks which are financing these enormous quantities is said to be causing many concerns to accept almost any price. With the concessions in railway rates recently granted to the German mines, therefore, the tendency is for competition against English exports to become more and more severe.

Some of the Northumberland collieries are well booked for a week or two ahead; but in Durham it is still generally a hand-to-mouth existence. Wear Specials and best-quality gas makers quote 19s. f.o.b.; but many brands are obtainable at considerably less than this, especially for loading terms which suit them. Seconds are nominally 17s. The demand for coking is negligible, and prices are 16s. 9d. to 17s. 3d., while best quality bunkers are hard to maintain at 17s. 6d. to 17s. 9d.

## YORKSHIRE AND LANCASHIRE COAL TRADE.

**From our Local Correspondent.**

Gas coals generally have been booked much earlier than usual this year. Several inquiries on the market are to be decided before the end of the month in respect of deliveries to commence at the beginning of August or September, so that it will be seen that the buyers are not prepared to wait until there may be an alteration in present-day conditions and prices before completing their purchases for next year. Prices as a rule show a reduction of 2s. to 3s. per ton as compared with last year.

The warmer weather has caused a reduction in the demand for household coal, and it is just possible that irregular working of collieries will result. If this is so, there will be a tendency for the price of industrial fuels, especially small hand slacks, to rise a little above the low figures that have prevailed for some months.

There is no change in the demand from the industrial coal consuming centres, although in the clothing trades it is anticipated that they will show better results during the next few months. The iron and steel trades, however, are still depressed.

The slump in shipping continues, although South Yorkshire hards are keeping firm in comparison with other grades. This undoubtedly will be the position for some weeks, as the Doncaster Races and the approaching Whitsuntide holidays will, as always, have a steadying effect on this particular grade.

Prices at Hull at the week end (f.o.b. usual shipping ports) were: South Yorkshire—Hards, Association, 20s. to 20s. 9d.; screened gas coal, 18s. 6d.; washed trebles, 20s.; washed doubles, 17s. 6d.; washed singles, 16s. to 16s. 6d.; washed smalls, 12s. 3d. to 12s. 6d.; unwashed doubles, 16s. 6d.; rough slack, 10s. 6d. to 12s.; and smithy peas, 19s. to 20s. West Yorkshire—Hartleys, 17s. to 18s.; screened gas coal, 18s.; washed trebles, 18s.; washed doubles, 16s. to 17s.; washed singles, 15s. 9d. to 16s. 3d.; washed smalls, 11s. 6d.; unwashed trebles, 17s. to 17s. 6d.; unwashed doubles, 13s. to 14s.; rough slack, 10s. 6d.; and coking smalls, 9s. Derbyshire and Notts—Top hards, 19s. 6d. to 20s.; washed trebles, 17s. to 19s.; washed doubles, 16s. 6d. to 17s.; washed singles, 15s. 3d. to 16s.; washed smalls, 11s. 6d. to 12s.; unwashed doubles, 14s. to 15s.; rough slack, 10s. 3d. to 10s. 9d. Yorks, Derbys, and Notts—Screened steam coal, 15s. to 17s.; gas coke, 21s. 6d. to 24s.; furnace coke, 15s. 6d. to 16s. 6d. per ton.

In Lancashire, industrial unscreened coal is 21s. at the pits, and the best qualities of Lancashire slack are from 15s. to 17s. per ton.

## COAL TRADE IN THE MIDLANDS.

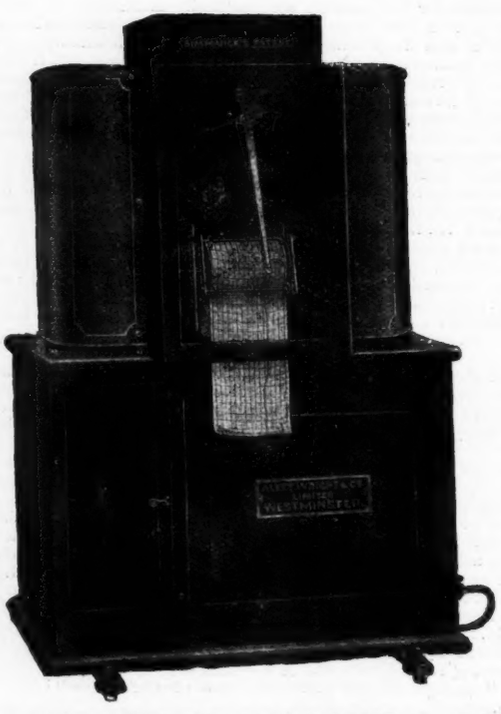
**From our Local Correspondent.**

A number of gas undertakings have already negotiated contracts for the new year's supplies. They are able to buy at 2s. to 3s. below the rates which have applied in the term now drawing to a close; the fall varying according to quality. Yorkshire gas coal, which was priced at 21s. to 22s. under the old contracts, is now selling at 18s. to 19s. The gas-works are not likely to be much better off, however, when against these savings is set the depreciation in coke and residuals, not to mention the acceptance of undelivered balances on the old high-priced contracts. Undertakings which have a considerable surplus of coke are now selling at 18s. to 20s. in order to rid themselves of the output, though in centres where the industrial demand is relatively heavy the price may run up to 24s. or 25s. There is no improvement whatever in the call for works fuel. Cannock Chase steams can be bought at 15s. at the pits.

The house coal trade has been maintained more regularly than usual this spring. It has now collapsed; and the situation of a large number of Midland pits which have been comparatively well employed has changed for the worse. Some of the merchants have not been able to clear stocks put down at the wharves, and appreciable losses in liquidation are almost inevitable.

The men employed at the Birchenwood Colliery, North Staffordshire, have rejected the proposal for the formation of a trust fund to continue the working of the pits on a co-operative basis. The well-being of Kidsgrove depends almost entirely upon the colliery, and the local authority is urging the Government in the public interest to intervene to avert a stoppage.


# THE CALORGRAPH



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# STOCK MARKET REPORT.

THE failure of the New Zealand Loan issue, followed by the underwriting of the proposed £6,000,000 London County Council Loan to be issued on precisely the same terms, had an adverse effect on all investment stocks. In the case of the New Zealand Loan, the underwriters were left with 85 p.ct. of their commitments, so that the prospects of the Council Loan are not encouraging. The impetus hoped for by the reduction in the income-tax has not materialized; investors adopting a passive attitude. Foreign Government stocks recovered slightly at the end of the week, but French loans continued in a depressed state, and there is little hope of any material improvement for some time to come.

Industrial shares were more unsettled than usual, Rubber shares alone being the exception. With the price of the raw material rising to 2s. 7d. per lb., a keen demand took prices up with a run. Mining shares, although generally quiet, were well supported. In the Platinum group T.C.L.'s rose $\frac{3}{16}$ to $4\frac{7}{16}$ on rumours of fresh developments.

| Issue. | Share. | When ex-Dividend. | Dividends. Prev. Hf.Yr. | Dividends. Last Hf. Yr. | NAME. | Quotations. May 15. | Rise + or Fall − on Week. | Transactions Lowest and Highest Prices. |
|---|---|---|---|---|---|---|---|---|
| £ | | | % p.a. | % p.a. | | | | |
| 171,978 | Stk. | Feb. 5 | 5 | 5 | Aldershot 5 p.c. max. C. | 78—81 | .. | .. |
| 295,492 | ,, | ,, | 4 | 4 | Do. 4 p.c. Pref. | 72—76 | .. | .. |
| 1,351,868 | ,, | Apl. 2 | 6¼ | 6¼ | Alliance & Dublin Ord. | 66—71 | .. | .. |
| 374,000 | ,, | Jan. 8 | 4 | 4 | Do. 4 p.c. Deb. | 63—68 | .. | .. |
| 300,000 | 5 | May 7 | 8 | 8 | Bombay, Ltd. | 4¼—5¼* | .. | 5 |
| 170,000 | 10 | Mar. 5 | 8½ | 8½ | Bournemouth 5 p.c. | 12—13 | .. | .. |
| 425,050 | 10 | ,, | 7 | 7 | Do. B 7 p.c. | 12½—12¾ | .. | 12½—12⅝ |
| 150,000 | 10 | ,, | 6 | 6 | Do. Pref. 6 p.c. | 11—12 | .. | .. |
| 50,000 | Stk. | Jan. 8 | 3 | 3 | Do. 3 p.c. Deb. | 56—59 | .. | .. |
| 162,025 | ,, | ,, | 4 | 4 | Do. 4 p.c. Deb. | 78—81 | +2 | 79 |
| 992,045 | ,, | Mar. 5 | 6 5/10 | 6 5/10 | Brentford A Con. | 95—105 | .. | 97 |
| 990,500 | ,, | ,, | 6½ | 6½ | Do. B New | 95—105 | .. | 96 |
| 76,000 | ,, | ,, | 5 | 5 | Do. 5 p.c. Pref. | 95—98 | .. | 95 |
| 306,690 | ,, | Dec. 18 | 4 | 4 | Do. 4 p.c. Deb. | 76—81 | .. | 77½—79½ |
| 181,337 | ,, | ,, | 6 | 6 | Do. 6 p.c. Rich. Red. Deb. | 100—105 | .. | .. |
| 214,740 | ,, | Mar. 5 | 11½ | 12½ | Brighton & Hove Orig. | 165—170 | .. | .. |
| 244,200 | ,, | ,, | 8½ | 9½ | Do. A Ord. | 122—125 | .. | 124½—125 |
| 1,487,500 | ,, | Feb. 19 | 5 | 5 | Bristol 5 p.c. max. | 96½—97½a | .. | .. |
| 855,000 | ,, | Mar. 19 | 8 | 7 | British Ord. | 110—115 | .. | .. |
| 100,000 | ,, | Dec. 18 | 7 | 7 | Do. 7 p.c. Pref. | 123—128 | .. | 124 |
| 120,000 | ,, | ,, | 4 | 4 | Do. 4 p.c. Red. Deb. | 72—77 | .. | .. |
| 100,000 | 10 | Dec. 18 | 8 | 6 | Cape Town, Ltd. | 7—8 | .. | .. |
| 100,000 | 10 | Apl. 23 | 4½ | 4½ | Do. 4½ p.c. Pref. | 6—7 | .. | 6 |
| 150,000 | Stk. | Dec. 18 | 4½ | 4½ | Do. 4½ p.c. Deb. | 71—76 | .. | .. |
| 626,860 | ,, | Feb. 19 | 6 | 6 | Cardiff Con. Ord. | 101—104 | .. | .. |
| 237,860 | ,, | Jan. 8 | 7½ | 7½ | Do. 7½ p.c. Red. Deb. | 104—107 | .. | .. |
| 157,150 | ,, | Feb. 19 | 5 | 6½ | Chester 5 p.c. Ord. | 89½—94½b | .. | .. |
| 1,513,280 | ,, | Mar. 5 | 6 | 5/14/8 | Commercial 4 p.c. Cap. | 86—89 | .. | .. |
| 560,000 | ,, | ,, | 6 | 5⅞ | Do. 3½ p.c. Cap. | 86—89 | .. | .. |
| 475,000 | ,, | Dec. 18 | 3 | 3 | Do. 3 p.c. Deb. | 57—60 | .. | .. |
| 800,000 | ,, | 14 Jan. 15 | — | — | Continental Union, Ltd. | 35—40 | .. | 37 |
| 200,000 | ,, | Dec. 18 | 7 | 7 | Do. 7 p.c. Pref. | 88—92 | .. | .. |
| 660,000 | ,, | Mar. 5 | 6½ | 6½ | Croydon sliding scale | 98—102 | .. | .. |
| 284,975 | ,, | ,, | 5 | 5 | Do. max. div. | 83—86 | .. | 83—84 |
| 492,270 | ,, | Feb. 19 | 6 | 9 | Derby Con. | 110—112c | .. | .. |
| 55,000 | ,, | Jan. 8 | 4 | 4 | Do. Deb. | 74—76c | .. | .. |
| 1,002,180 | 1. | Jan. 22 | 6 | 4 | European, Ltd. | 7—8 | .. | 7—7⅛ |
| 16,460,070 | Stk | Feb. 19 | 5½ | 5½ | Gas Light & Coke 4 p.c. Ord. | 83—85 | −½ | 83—84 |
| 2,800,000 | ,, | ,, | 3½ | 3½ | Do. 3½ p.c. max. | 62—65 | .. | 63½—64 |
| 4,062,235 | ,, | ,, | 4 | 4 | Do. 4 p.c. Con. Pref. | 78—80 | .. | 79—80 |
| 4,761,930 | ,, | Dec. 18 | 3 | 3 | Do. 3 p.c. Con. Deb. | 59—62 | .. | 60½—61½ |
| 130,000 | ,, | — | 10 | 10 | Do. 10 p.c. Bonds | .. | .. | .. |
| 42,000 | ,, | — | 7½ | 7½ | Do. 7½ p.c. Ilford Deb. | .. | .. | .. |
| 82,500 | ,, | Mar. 19 | 6¾ | 6¾ | Hastings & St. L. 5 p.c. Conv. | 92—97 | .. | 95 |
| 258,740 | ,, | ,, | 5¼ | 5¼ | Do. 3½ p.c. Conv. | 73—78 | .. | .. |
| 70,000 | 10 | May 7 | 10 | 10 | Hongkong & China, Ltd. | 13½—16½* | .. | .. |
| 86,600 | Stk. | Mar. 5 | 10 | 10 | Hornsey 7 p.c. | 136—141 | .. | .. |
| 1,976,000 | ,, | Nov. 20 | 30 | 10 | Imperial Continental Cap. | 180—185 | +1 | 180—183½ |
| 263,950 | ,, | Feb. 5 | 3½ | 3½ | Do. 3½ p.c. Red. Deb. | 71—74 | .. | .. |
| 235,242 | ,, | Mar. 19 | 6¼ | 6¼ | Lea Bridge 5 p.c. Ord. | 96—101 | .. | .. |
| 4,127,340 | ,, | Feb. 19 | 5½ | 5½ | Liverpool 5 p.c. Ord. | 89½—90½b | +½ | 90 |
| 600,000 | ,, | Mar. 19 | 7 | 7 | Do. 7 p.c. Red. Pref. | 103½—104½b | .. | 104½ |
| 165,736 | ,, | Feb. 19 | 9 | 8 | Maidstone 5 p.c. Cap. | 122—132 | .. | .. |
| 63,480 | ,, | Dec. 18 | 3 | 3 | Do. 3 p.c. Deb. | 54—59 | .. | .. |
| 75,000 | 5 | Dec. 4 | 7 | 5 | Malta & Mediterranean | 4¼—4¾ | .. | 4 5/16 |
| 541,920 | Stk. | Nov. 20 | 4 | 4 | Montevideo, Ltd. | 64—69 | +2 | .. |
| 4,061,315 | ,, | Mar. 5 | 5 | 5 | Newcastle & Gateshead Con. | 77½—78d | .. | .. |
| 300,929 | ,, | ,, | 4 | 4 | Do. 4 p.c. Pref. | 73—74d | +½ | .. |
| 529,705 | ,, | Dec. 18 | 3½ | 3½ | Do. 3½ p.c. Deb. | 68½—69½d | .. | .. |
| 15,000 | ,, | Mar. 5 | 11 | 12 | North Middlesex 10 p.c. | .. | .. | .. |
| 75,940 | ,, | ,, | 7 7/10 | 8⅝ | Do. 7 p.c. | .. | .. | .. |
| 300,000 | Stk. | May 7 | 9 | 7 | Oriental, Ltd. | 100—105* | .. | .. |
| 188,120 | ,, | Jan. 8 | 7¼ | 7½ | Plym'th & Ston'house 5 p.c. | 109—114 | .. | .. |
| 60,000 | 50 | Mar. 5 | 13 | 14 | Portsea Island B | 96—99 | .. | .. |
| 100,000 | 50 | ,, | 12 | 13 | Do. C | 93—98 | .. | .. |
| 9,289,909 | 1 | — | — | — | Primitiva Ord. | 9/—10/- | —/6 | 9/3—9/7½ |
| 311,100 | 100 | Dec. 1 | 4 | 4 | Do. 4 p.c. Red. Deb. | 79—81 | .. | .. |
| 600,000 | Stk. | Jan. 22 | 4 | 4 | Do. 4 p.c. Red. Deb. 1911 | 64—66 | +1 | .. |
| 820,335 | ,, | Dec. 18 | 4 | 4 | Do. B. Aires 4 p.c. Rd. Db. | 65—67 | .. | .. |
| 321,670 | ,, | ,, | 4 | 4 | Do. R'r P'te 4 p.c. Rd. Db. | 65—67 | .. | .. |
| 150,000 | 10 | Mar. 19 | 6 | 6 | San Paulo 6 p.c. Pref. | 7⅛—8⅛ | .. | .. |
| 125,000 | 50 | Jan. 2 | 5 | 5 | Do. 5 p.c. Red. Deb. | 43—46 | .. | .. |
| 270,000 | Stk. | Mar. 19 | 5½ | 5½ | Sheffield A | 103—105e | .. | .. |
| 419,968 | ,, | ,, | 5½ | 5½ | Do. B | 103—105e | .. | .. |
| 1,047,000 | ,, | ,, | 5½ | 5½ | Do. C | 103—105e | .. | .. |
| 90,000 | 10 | Oct. 23 | 8 | 6 | South African | 7—9 | .. | .. |
| 6,809,895 | Stk. | Feb 19 | 5 | 6½ | South Met. Ord. | 93—95 | .. | 93½—94½ |
| 1,895,445 | ,, | Jan. 8 | 3 | 3 | Do. 3 p.c. Deb. | 59—62 | .. | 60½—61½ |
| 734,000 | ,, | Mar. 5 | 6½ | 6½ | Do. 6½ p.c. Red. Deb. | 102½—104½ | .. | 103—103½ |
| 91,500 | ,, | Mar. 5 | 8½ | 8½ | South Shields Con. | 135—136d | .. | .. |
| 1,187,795 | ,, | Feb. 19 | 6½ | 6½ | South Suburban Ord. 5 p.c. | 97—102 | .. | .. |
| 368,837 | ,, | Dec. 18 | 5 | 5 | Do. 5 p.c. Deb. | 97—100 | .. | .. |
| 647,740 | ,, | May 7 | 5 | 5 | South'mpt'n Ord. 5 p.c. max. | 81—84* | .. | .. |
| 121,275 | ,, | Dec. 18 | 4 | 4 | Do. 4 p.c. Deb. | 72—77 | .. | 74½—75 |
| 250,000 | ,, | Mar. 5 | 7 | 7 | Swansea 7 p.c. Red. Pref. | 102—104 | +½ | .. |
| 200,000 | ,, | Dec. 18 | 6½ | 6½ | Do. 6½ p.c. Red. Deb. | 103—105 | .. | .. |
| 120,000 | ,, | Feb. 19 | 8 | 8 | Tottenham District A 5 p.c. | 116—119 | .. | .. |
| 882,275 | ,, | ,, | 6½ | 6½ | Do. B 3½ p.c. | 96—99 | −1 | 97—98½ |
| 181,255 | ,, | Dec. 18 | 4 | 4 | Do. 4 p.c. Deb. | 77—80 | .. | .. |
| 258,251 | ,, | Mar. 19 | 5 | 5 | Tynemouth Con. and New | 77—79d | .. | .. |
| 197,294 | ,, | Feb. 19 | 6½ | 6½ | Uxbridge, Maidenhead, & Wycombe 5 p.c. | 95—100 | −5 | .. |
| 88,330 | ,, | ,, | 5 | 5 | Do. 5 p.c. pref. | 95—100 | .. | .. |
| 91,800 | ,, | ,, | — | 6½ | Do. 5 p.c. Maidenh'd | 90—95 | .. | .. |
| 30,000 | ,, | Mar. 5 | 9½ | 9½ | Wandsworth, Wimbledon, and Epsom— Wandsworth A 5 p.c. | 130—135 | .. | .. |
| 255,636 | ,, | ,, | 7½ | 7½ | Do. B 3½ p.c. | 110—115 | .. | .. |
| 392,955 | ,, | ,, | 6/9/6 | 6/9/6 | Do. C and New | 95—100 | .. | .. |
| 354,000 | ,, | ,, | 7⅝ | 7½ | Wimbledon 5 p.c. | 105—110 | .. | .. |
| 98,000 | ,, | ,, | 7⅝ | 7½ | Epsom 5 p.c. | 112—117 | −3 | .. |
| 88,416 | ,, | Dec. 18 | 3 | 3 | 3 p.c. Deb. | 57—60 | .. | 58—58½ |

Quotations at :—*a.*—Bristol. *b.*—Liverpool. *c.*—Nottingham. *d.*—Newcastle. *e.*—Sheffield. * Ex. div.

The Gas Market was very active. The transactions were above the normal. Although there were several important falls in the quotations, notably Uxbridge Maidenhead and Wycombe, which dropped 5 points to 95-100, and Wandsworth (Epsom) 5 p.ct. stock 3 points to 112-117, it will be seen there were several upward markings. Among the recent capital issues were: Watford Gas, £50,000 "B" Capital Stock by tender, minimum par; Guildford Gas, £20,000 5 p.ct. Preference—minimum 90; York Town and Blackwater Gas, £10,000 5½ p.ct. Perpetual Debenture at par; and Southend Gas, £50,000 5½ p.ct. Irredeemable Preference, minimum par.

The following transactions were recorded during the week:

On Monday, Bahia Blanca "A" 2s. 7½d., 2s. 9d., Bombay 5 *ex* div., Bournemouth "B" 12½, 12¼½, Brentford "B" 96, Brighton and Hove "A" 124½, 125, British Gas Light 7 p.ct. preference 124, Croydon maximum dividend 84, European 7, Gas Light and Coke 83¼, 83⅝, 83⅜, 84, 84¼, 3½ p.ct. maximum 63½, Imperial Continental 181, Primitiva 9s. 6d., South Metropolitan 93½.

On Tuesday, Cape Town 4½ p.ct. preference 6, Gas Light and Coke 83, 83⅛, 83¼, 83½, 83⅜, 84, 4 p.ct. preference 80, 3 p.ct. debenture 60½, Hastings and St. Leonards 5 p.ct. converted 95, Imperial Continental 181, Liverpool 7 p.ct preference 104⅞, South Metropolitan 93¼, 93⅝, 94, 3 p.ct. debenture 60⅜, 61⅛, 6½ p.ct. debenture 103¼, Southampton 4 p.ct. debenture 74½, 75, Tottenham "B" 98, 98½, Wandsworth 3 p.ct. debenture 58½. Supplementary prices, Barnet "B" 147, "D" Water stock 107½, Redhill 7½ p.ct. 102½.

On Wednesday, Brentford "A" 97, 5 p.ct. preference 95, 4 p.ct. debenture 77½, European 7, 7⅛, Gas Light and Coke 83, 83¼, 83⅛, 83⅜, 3½ p.ct. maximum 63¼, 64, 3 p.ct. debenture 60½, Imperial Continental 181, South Metropolitan 93⅜, 94, 94⅛, 6½ p.ct. debenture 103, Tottenham "B" 97. Supplementary prices, Cape Town 5 p.ct. regd. mortgage debentures 74, 74½, Cheltenham 5 p.ct. maximum 79, 79½.

On Thursday, Bournemouth 4 p.ct. debenture 79, Brentford "B" 90, Continental Union 37, European 7½, Gas Light and Coke 83, 83½, 83¾, 4 p.ct. preference 80, 3 p.ct. debenture 61¼, Imperial Continental 180, 183, 184, Malta and Mediterranean 9½s. 3d., Primitiva 9s. 3d., 9s. 4½d., 9s. 7½d., South Metropolitan 94, 94¼, 3 p.ct. debenture 61½, Wandsworth 3 p.ct. debenture 58. Supplementary prices, Cheltenham 4 p.ct. debenture 62, 62½, Tottenham 5½ p.ct. preference 104¼, 104½.

On Friday, Brentford 4 p.ct. debenture 79½, Croydon maximum dividend 83, 83½, Gas Light and Coke 83⅛, 83½, 83⅝, 83¾, 3½ p.ct. maximum 63½, 4 p.ct. preference 79, 79¾, Imperial Continental 182, 183½, Primitiva 9s. 3d., 9s. 6d., South Metropolitan 93½, 93⅝, 93⅞, 94, 94½, 3 p.ct. debenture 60½. Supplementary prices, Petersfield and Selsey 26s., 5 p.ct. preference 46s. 3d., 47s. 6d., Sutton 105.

In Lombard Street the chief interest was the Bank's purchase of £1,610,000 bar gold which played a definite part in easing the short loan market at the close of the week. Several dividend payments also assisted to this end, loans being obtainable at as low a rate as 3 p.ct. Treasury Bills for £28,000,000 were allotted at an average rate of £4 13s. 5·56d. p.ct., being nearly 3s. advance on the previous week's rate.

On the Foreign Exchange Market there was a good demand for sterling-dollars, and the rate closed at 4.85½. French francs were cheaper at 93.40, and Belgian francs at 96.35. Italian lire closed at 118.80.

Bar silver was fixed at $\frac{1}{16}$d. higher for forward delivery, the cash price being 31 $\frac{3}{16}$d. Orders were received from both India and China.

The Bank Rate is 5 p.ct., to which it was raised from 4 p.ct. on March 5. Bankers' deposit rates are 3 p.ct. The deposit rates of the discount houses are 3 p.ct. at call and 3½ p.ct. at notice.

## TRADE NOTES.

**Messrs. T. C. Jones & Co., Ltd.**

This firm have just published a new hand and machine tool catalogue, which is fairly representative of the requirements of general engineers and contractors. The stock of lathes, and milling, shaping, drilling, and shearing machines is constantly being added to by the firm, and delivery of all types from stock can usually be had.

**Dehydrating Plant and Tar Works Equipment.**

A new catalogue has just been issued by Messrs. W. C. Holmes & Co., Ltd., in which they describe their latest plants for the distillation of coal tar by means of steam heated and fire heated continuously operated stills. The application of the Winker system to this process, in conjunction with the Hird still, or, indeed, any other type, is of interest to engineers and gas authorities already dehydrating or distilling their own tar; for, by adding a still of this type, a considerable increase in the capacity of an existing installation can be secured. The theoretical considerations involved are fully explained in the booklet.

**York Town and Blackwater Debenture Issue.**—Tenders for £10,000 of 5½ p.ct. perpetual debenture stock of the York Town and Blackwater Gas Company, which was offered by Messrs. A. & W. Richards, amounted to £24,400, and ranged from £105 down to the minimum of par.

**South Suburban Gas Company's Standard Price.**—The Public Control Committee of the London County Council have still under consideration the question of the action to be taken with a view to securing a revision of the standard price applicable to the South Suburban Gas Company.

## CONTRACTS OPEN.

**Coal.**

Tenders are invited by the Slough Gas and Coke Company for the supply of 6000 tons of best screened gas coal. [See advert. on p. 547.]

The Directors of the Gloucester Gas Light Company are inviting tenders for the supply of about 30,000 tons of screened gas-coal. [See advert. on p. 547.]

The Gas Committee of the County Borough of Stoke-on-Trent are inviting tenders for the supply of 93,500 tons of gas coal and 1300 tons of steam slack. [See advert. on p. 547.]

**Lea Bridge Preference Stock Issue.**—Particulars will be found in our advertisement pages to-day of an issue by Messrs. A. & W. Richards, of No. 37, Walbrook, E.C., of £30,000 of 6 p.ct. irredeemable preference stock in the Lea Bridge District Gas Company. The new capital is required to meet the outlay on extensions of the works, mains, &c., rendered necessary by the constantly increasing demands for gas.

**Gas Price at Burnley.**—Explaining to the Burnley Town Council the Gas Committee's decision to increase the price of gas ½d. per therm, Alderman H. Emmott (the Chairman) stated that it would only cover half the estimated loss of £12,200. The balance would be taken from the reserve fund. The reasons for the loss were the estimated drop of £5000 in coke as compared with the previous year, and £4700 in tar, with the payment of £5000 more in wages.


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